

IMPACTS OF SEMI SELF-CONTAINED LEARNING COMMUNITIES
IN GRADE 6 ON STUDENTS' ENGAGEMENT, ACHIEVEMENT, AND
PERCEPTIONS OF THE CLASSROOM ENVIRONMENT: AN EVALUATION OF
PROJECT SUCCESS

by

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A dissertation submitted to Johns Hopkins University in conformity with the
requirements for the degree of Doctor of Education

Baltimore, Maryland

May 2018

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Abstract

This study examines the impacts of business-as-usual departmentalization and semi self-contained learning communities on students' engagement, achievement, and perceptions of the classroom environment in grade 6. The treatment condition in this randomized control trial is Project SUCCESS (e.g., *Student Unified Curriculum Combining English, digital literacy, Science, and Social Studies*) and departmentalization, or achievement through specialization (ATS), serves as the control condition. In the spring of 2016, grade 5 students were randomly assigned to Project SUCCESS ($n = 87$) and ATS ($n = 313$) for grade 6 in in two relatively large and low-income middle schools in the inner suburbs of a large metropolitan area. Multiple regression analyses on standardized test scores in reading on the Measures of Academic Progress (MAP-R) showed that Project SUCCESS had substantial and highly significant impacts on students' literacy development in grade 6. Further, Project SUCCESS profoundly reduced the achievement gap between students who received free and reduced meals (FARMS) and students of higher socioeconomic status. Further, students in Project SUCCESS earned significantly higher cumulative grade point averages and placed significantly more value on interacting with peers than students in ATS. Finally, students in Project SUCCESS were less likely than the other students to indicate that their school had a negative performance goal structure where teachers treat students who get good grades better than other students, pay too much attention to grades and not enough to helping students learn, care only about the smart kids, and encourage students to compete against each other for grades.

Keywords: middle school achievement, school engagement, goal orientations, interdisciplinary instruction

I watch the ripples change their size
But never leave the stream
Of warm impermanence
And so the days float through my eyes
But still the days seem the same
And these children that you spit on
As they try to change their worlds
Are immune to your consultations
They're quite aware of what they're going through
Changes, David Bowie

Dedication

Both of my parents were educators and I grew up convinced of the power public education has to change the lives of children. In my heart I still believe this. Therefore, this study is dedicated to all of the employees who work tirelessly in public school systems to create a better future for children.

It is also dedicated to my dear father, Alan Dodd, who was a single parent for much of my life, and the finest public educator I have ever known. Thank you to my brother Jamie and sister Jenny for the bonds of love that we still share from our childhood. My completion of this study is also dedicated to the memory of my mother, Beverly Dodd, who would have wanted me to always pursue what was best for children. You still inspire me all these years later.

Thank you to my two children Johnny and Nora, for sacrificing time you would have been able to spend with me so I could pursue my studies at Johns Hopkins University. You have been unfailingly supportive, interested, and loving while I completed this research. I am so proud of both of you for being kind, caring, and wonderful kids and I love each of you dearly.

Finally, I dedicate this study to my wife Jenny, the person who inspires me most to be my best self. Your dedication, encouragement, support, and love have made the difference in my successful completion of my doctoral studies. I am so grateful that you have been there all along the way.

Acknowledgements

This dissertation is the direct result of the work, support, and guidance of many friends, colleagues, and mentors. In one capacity or another, they gave their time, insight, expertise, and support in my research and the development and implementation of Project SUCCESS.

Dr. Darryl Williams, executive sponsor, was a significant source of guidance and paved the way for the implementation and study of Project SUCCESS. In addition, Principals' Virginia de los Santos and James Allrich were instrumental in supporting this research in their schools and providing resources to implement this study. Both are exceptional principals who care deeply about the welfare and success of their students.

Mr. Peter Crable and Mrs. Cortney Chao were also indispensable as Project SUCCESS liaisons. They provided exceptional coordination of the program, data collection, and communication with participants in the study. I also owe a great debt of gratitude to Ms. Rachel Lyons, Ms. Jessica McKelvey, Mrs. Kesa Summers, and Mr. David Seeger. Each of these educators had a tremendous impact on the implementation of this study.

The design and original implementation of Project SUCCESS resulted from the inspiration and collaboration of several extraordinary educators. Dr. Kelli Phillips, Mr. Casey Siddons, and Ms. Ginger Berry ensured that Project SUCCESS was launched in a way that was true to its design and the shared values and beliefs that drove the development of the program.

My advisor Dr. Henry Smith and committee members Dr. Douglas Mac Iver and Dr. Camille Bryant had a profound influence on the theory, design, methodology, and

implementation of this study. They gave generously of their time and were always there to provide extensive support when I invariably ran into barriers along the way. They were the expert teachers that ensured that I had the knowledge and skills to design and implement my study and complete my dissertation. I owe a great debt of gratitude to Dr. Mac Iver specifically for the time he took to collaborate with me on the analysis of the outcomes in this study.

I am sincerely grateful for the support of my close friend Dr. Kristy Wallmo who also provided exceptional insight and guidance in the design and analysis of the outcomes of this study. She was incredibly giving of her time, expertise, and encouragement and I owe her much.

Finally, I would like to offer my sincerest thanks to Ms. Ashley Wilson and Ms. Alison D'Auitolo who provided tireless support and expertise in editing and refining the content of this dissertation. I was always able to turn to them for guidance, encouragement, and the extraordinary knowledge and skill each possesses. The completion of this dissertation would not be possible without your help.

TABLE OF CONTENTS

Abstract	ii
Changes by David Bowie.....	iii
Dedication	iv
Acknowledgements	v
Table of Contents	vii
List of Tables	xi
List of Figures	xii
Executive Summary	1
Chapter 1: The Decline in Engagement and Disappointing Achievement in Grade 6	5
Introduction	5
New Institutionalism	7
Organizational Isomorphism and Coupling	9
Historical Chartering	12
“Situationally Constrained Choice”	15
The Middle School Classroom: Cognition, Behavior, and the Environment	18
Statement of Problem	20
Review of Literature	21
Environmental Determinants in Middle School Classrooms	21
Performance and Mastery Goal Orientations	22
Teacher Affective Support	25
Student Autonomy	29
Classroom Interaction	32
Engagement	36
The Multi-Dimensional Nature of Engagement	37
Progressive School Disengagement	39
Relatively Lower Levels of Achievement	42
Outcomes Produced by Different School Types	43
School and Cohort Size	45
Organizational Structure	47

Departmentalization	48
The Effects of Departmentalization	49
Research Questions	53
Discussion and Conclusions	53
Chapter 2: A Middle School Needs Assessment on Engagement and Achievement	55
Problem of Practice	55
A Century of Struggle in Middle Years Schooling	55
A Well-Researched Problem	56
Goals and Objectives	58
Research Question	58
Methodology	58
Needs Assessment Context	59
Variables	60
Methods	61
Achievement	61
School Engagement	63
Discussion	65
Chapter 3: An Intervention Literature Review	66
Calls for Change and Resulting Methods for Middle Years Reform	67
Instructional Scheduling	73
Flexible Scheduling	74
The Effects of Block Scheduling	78
Interdisciplinary Team Teaching	81
The Evolution of Interdisciplinary Team Teaching	81
The Effects of Interdisciplinary Team Teaching	84
Grade Level Looping	87
Semi Self-Contained Learning Communities in Grade 6: Project SUCCESS	91
Semi Self-Contained Structure	91
Project SUCCESS Social Dimensions	92
Chapter 4: Methods and Procedures	94
Research Design	94

Process Evaluation	94
Outcome Evaluation.....	96
Research Questions and Hypotheses	97
Methods.....	98
Participants.....	98
Power of the Design to Detect Impacts on Student Outcomes	101
Instrumentation	102
Procedures.....	105
Intervention Design.....	105
Data Collection	108
Data Analysis	108
Chapter 5: Findings and Discussion	112
Introduction.....	112
Evaluation of Implementation.....	112
Student Participant Engagement	113
Project SUCCESS Student Schedules	113
Project SUCCESS Teacher Schedules.....	115
Teacher Recruitment and Engagement	116
Project SUCCESS Curriculum	117
Random Assignment.....	119
Findings.....	120
Research Question One.....	120
Research Question Two	125
Research Question Three	127
Discussion.....	131
Theoretical Frameworks	132
Research Question One: The School and Classroom Environment.....	133
Research Question Two: School Engagement.....	137
Research Question Three: Reading Achievement and GPA.....	139
The Explanatory Power of Complementary Theoretical Frameworks	144
New Institutionalism.....	146

Situationally Constrained Choice	147
Social Cognitive Theory	151
Implications for Middle Years Schooling.....	154
Innovation at the Margins	156
A Conversion of Faith.....	157
Project SUCCESS and Interdisciplinary Teams	159
A Question of Equity	161
Limitations	162
Conclusion	165
References.....	170
Appendix A: Data Collection Matrix: Evaluating the Implementation of Project SUCCESS	186
Appendix B: Causal Model for Restructuring Teaching and Learning in Grade 6	187
Appendix C: Logic Model for Project SUCCESS: Reorganizing Instruction in Grade 6.....	188
Appendix D: Project SUCCESS Nine-Week Plan Cover Page.....	189
Appendix E: Outcome Measures: Creation of Scales, Their Reliabilities and Descriptive Statistics	191
Biographical Statement.....	197

LIST OF TABLES

Table 1: 2013–2014 Middle School 1 Enrollment.....	59
Table 2: 2014 Maryland School Assessment Performance Levels (Montgomery County)	60
Table 3: Needs Assessment Methodology	60
Table 4: Pooled Participant Demographic Data.....	100
Table 5: Treatment and Control Participant Demographics	101
Table 6: Outcome Evaluation Matrix	103
Table 7: Project SUCCESS Teachers’ Area of Specialization and Experience	117
Table 8: Impacts of Project SUCCESS on Students’ Perceptions of the School/Classroom Environment in February 2017	122
Table 9: Impacts of Project SUCCESS on Teachers’ Perceptions of the Classroom Environment in May 2017	124
Table 10: Impacts of Project SUCCESS on School Engagement in spring 2017	126
Table 11: Impacts of Project SUCCESS on Students’ MAP-R Scores in Spring 2017 ..	128
Table 12: Testing the Size and Significance of the FARMS Gap in Student Achievement (MAP-R Full Scale Scores) in Spring 2017.....	129
Table 13: Testing the Size and Significance of the Gap in Reading Achievement Growth Between FARMS and Non-FARMS Students in Project SUCCESS and the Control Group	131

LIST OF FIGURES

Figure 1: Elementary to middle school math scores for students in grade 7 in school 1...	62
Figure 2: Elementary to middle school reading scores for students in grade 7 in school 1.....	63
Figure 3: Gallup engagement scores of grade 5 students in eight feeder elementary schools.....	64
Figure 4: Gallup engagement scores of grade 6-8 students in three receiving middle schools.....	65
Figure 5: Project SUCCESS student schedule for school 1 within the standard A/B alternating day block schedule.....	114
Figure 6: Project SUCCESS student and teacher schedules for school 2.....	114
Figure 7: Project SUCCESS teacher schedule for school 1 within the standard A/B alternating day block schedule.....	115
Figure 8: The intersection of teachers' and students' cognition and behavior in departmentalized classrooms	145

Executive Summary

The push and pull between change and continuity in American public education is exemplified by the long and complex evolution of middle years schooling. While there has been widespread agreement for decades on the importance of securing educational success for early adolescents, there has nonetheless been conspicuous historical disagreement about the most effective way to accomplish it. Subsequently, this study looks back at the evolution of middle years schooling, examines various related reforms and interventions, and ultimately provides an empirical analysis of the impacts of two different organizational structures, Project SUCCESS and departmentalization, on grade 6 students' engagement, achievement, and perceptions of the classroom environment.

It was approximately a century ago that junior high schools began to emerge on the educational landscape of the nation. These schools were a significant organizational innovation that reflected growing societal understandings that early adolescence was a unique time in life that required an equally unique approach to schooling. However, there was also ambiguity about the exact nature of early adolescent needs and the purposes behind the design of junior high schools.

Over time, junior high schools were increasingly perceived as failing in their mission, in large part because of the way they were modeled after high schools. It was thought that a newly configured school type, the middle school, would meet the needs of early adolescents because of new structures that were viewed as a stark departure from those that comprised junior high schools. However, in the last decade, researchers and policy makers are questioning the legitimacy of middle schools based on disappointing

outcomes relative to K-8 schools and the negative impacts associated with the elementary to middle school transition.

A primary intent of this study was to combine rich and varied theory and research from the fields of organizational analysis and psychology to help explain the unique place middle years schooling holds in public education. Therefore, we utilized new institutionalism and social cognitive theory to show how the structure of organizational environments and the psychosocial dimensions of teaching and learning are intricately related to one another. As such, we drew heavily on the groundbreaking institutional analysis of John Myer and Brian Rowan and Albert Bandura's landmark formulation of social cognitive theory.

New institutional theory is a means of explaining how the extent to which middle years schooling can be changed appears to be predicated on the relative power of institutional structures and arrangements that historically keep things the same. In doing so, we explore the dimensions of the junior high and middle school organizational environment that research shows are mismatches for the psychosocial and academic needs of early adolescents. In particular, we examine the role departmentalization plays in organizing instruction and the significant influence it has on middle school norms, teachers' beliefs and pedagogy, and student outcomes.

Where new institutionalism describes the development of organizational environments, Bandura's social cognitive theory is critical in our explanation of how the environment of middle schools interacts with students' cognition and behavior in socialization and learning. Subsequently, we investigate the formation of cognitive goal types, self-efficacy, and the social networks in classrooms that are vital to student

psychosocial development and academic achievement. Further, we investigate school engagement as a multi-dimensional construct that is influenced by the classroom environment and in turn impacts student achievement.

Project SUCCESS (Student Unified Curriculum Combining English, Science, digital literacy, and Social Studies) is an innovative semi self-contained classroom structure in grade 6 where students receive instruction in four subjects from one teacher for approximately half of each school day. Therefore, Project SUCCESS is a significantly different structure than departmentalization where students typically have six to eight different classes and teachers on a daily or every other day basis. Project SUCCESS teachers are responsible for integrating the content of the four different courses and are responsible for only one intact group of 20 to 25 students. Conversely, teachers in departmentalized settings usually teach five classes with as many as 150 students.

This study was a randomized control trial that was implemented during the entire 2016-2017 school year in two relatively large middle schools in the inner suburbs of a large, east coast city. Both schools in the study had enrollments that were primarily composed of African American and Hispanic students and over half of each school's student population qualified for free or reduced meals (FARMS). In the spring of 2016, grade 5 students were randomly assigned to Project SUCCESS ($n = 87$) or departmentalization ($n = 313$), which is referred to in the study as achievement through specialization (ATS).

Project SUCCESS teachers volunteered to teach in the program in each school and were subsequently selected by each school's principal. Four Project SUCCESS teachers and eight teachers in ATS took the Teacher Classroom Environment Measure

(TCEM) in May of 2017. Likewise, students took several surveys throughout the school year including the School Classroom Perception Measure (SCPM) and the pre and post School Engagement Index (SEI). Finally, the MAP-R standardized reading test and cumulative grade point average were used to assess differences in academic achievement between students in Project SUCCESS and students in ATS.

CHAPTER 1
THE DECLINE IN ENGAGEMENT AND DISAPPOINTING ACHIEVEMENT IN
GRADE 6

Introduction

Adolescence is characterized by rapid psychosocial and physiological change. This period of personal awakening should ideally include commensurate levels of academic achievement. However, after the transition from elementary school, many students develop negative perceptions of the middle school environment, show declines in engagement, and display relatively lower achievement compared to students who have not made a structural school transition (Alspaugh & Harting, 1998; Rockoff & Lockwood, 2010).

Departmentalization is used extensively in secondary education to coordinate the delivery of subject matter. Middle school teachers are often arranged into subject-specific departments and therefore have a content orientation that influences their beliefs and collective norms about teaching and learning (McPartland, 1987; Grossman & Stodolsky, 1995). Furthermore, departmentalized schools typically have segmented days where students switch classes for different courses. Thus, departmentalization largely orients the work of teachers, schedules student learning, and helps shape students' perceptions of the middle school environment.

Two complementary theoretical frameworks were used to examine the impact of departmentalization on teaching and learning in middle schools. First, new institutionalism was utilized to examine the legitimacy and stability of departmentalization as a widely used formal structure in secondary education.

Subsequently, Cuban's (1988) theory of situationally constrained choice will frame the potential constraints that departmentalization exerts on teachers' beliefs, norms, and pedagogy. Second, Bandura's (1989) social cognitive theory gives meaning to the multidirectional interaction amongst classroom determinants and the perceptions, engagement, and achievement of early adolescents. Thus, situationally constrained choice provides a framework for understanding the pedagogical behavior of teachers and social cognitive theory helps explain how teacher practice influences student engagement and learning in middle school classrooms.

Project SUCCESS (Student Unified Curriculum Combining English, digital literacy, Science, and Social studies) is a semi self-contained learning community in which students receive instruction in four core subjects from one teacher for half of each school day. Consequently, students have three fewer teachers, two fewer class transitions, and spend half of each school day with one intact peer group. In order to measure the effects of this intervention, grade 6 students in two middle schools were randomly assigned to treatment and control conditions. Thus, our randomized control-trial measured differences in school engagement, achievement, and students' perceptions of the classroom environment between Project SUCCESS and traditional departmentalization, or achievement through specialization (ATS).

Junior high schools, once considered an innovative design for educating early adolescents, were eventually transformed into middle schools (Cuban, 1992). However in many cases, formal structures like departmentalization that organized teaching in junior high schools persist as institutionalized elements of middle schools, seemingly "beyond the discretion of any individual participant or organization" (Cuban, 1992; Meyer &

Rowan, 1977, p. 344). Subsequently, this study seeks to delineate how teaching and learning could be reorganized in middle schools. To this end, structural changes in the middle school organizational environment would fundamentally transform the beliefs and practices of teachers and student outcomes.

New Institutionalism

New institutionalism conceptualizes how the development of complex organizations influences individual and collective human behavior (Crowson, Boyd, & Mawhinney, 1995). Contrary to the rationalism of functionalist theories, new institutionalism views the behavior of modern organizations as largely motivated by the pursuit of legitimacy often at the expense of efficiency and optimal outcomes (Crowson et al., 1995).

Classic bureaucratic theory views formal organizational structure as a “blueprint” for the composition and arrangement of “offices, departments, positions, and programs” (Meyer & Rowan, 1977, p. 342). The nature of how these components interact within formal organizational structure is dictated by rules and theories of action that assume that both independent and collective organizational goals will be met through rational activities and control (Meyer & Rowan, 1977).

For example, most secondary schools are comprised of departments of subject-specific teachers. Department chairs lead their departments in the implementation of curricula and collaborate with one another and school administrators in a classically rational manner to group students, inspect instruction, agree on grading policies, and assign teachers in departments to specific classes (Grossman & Stodolsky, 1995). In the context of classical bureaucratic theory, imposing this formal structure and implementing

rational approaches to coordinating complex social interactions within a school would ultimately produce optimal outcomes for both students and teachers (Crowson et al., 1995). However, formal organizational structure and rational policies and goals possess institutional legitimacy but often fail to produce desirable organizational outcomes.

In so much that classic bureaucratic theory held that rational organizations characterized by centralized authority and largely sheltered from environmental influences embodied the highest form of institutional evolution, it did not account for myriad forms of individual and collective behavior irreconcilable with formal organizational structure (Crowson et al., 1995). Organizational decision making driven by political, social, and self-interested expediency and the persistence of formal structures to the exclusion of technical innovation suggests that behavior cannot be fully explained by the rational pursuit of goals and productivity in bureaucratic organizations (Crowson et al., 1995).

By the time the term bureaucracy had become synonymous with inefficiency and there was waning public confidence in institutions during the latter half of the twentieth century, institutional theory was attempting to describe the reasons why the reality of institutional life was so different than what rational institutions were mythologized to be. Subsequently, theorists began to account for the way in which patterns of human behavior and complex organizational interdependencies persist and converge into structures and systems that produce institutional legitimacy (Crowson et al., 1995).

Meyer's (1977) pioneering effort to model the legitimizing effects of the allocation of newly defined social roles and structures within education and society helped move institutional theory beyond rational views of education production and

socialization. To this end, new institutional theory holds that social status is allocated to both educators and the educated alike through the creation and division of authoritative knowledge resulting in new social classes while altering the fundamental social structure of society (Meyer, 1977). Furthermore, Meyer and Rowan (1977) posit that behavior is socialized through organizational structures and routines that are reinforced by pervasive “understandings of social reality” (p. 343). As such, formal organizational structures reflect socially legitimized rules embodied as powerful institutionalized myths about how actors should think and act (Meyer & Rowan, 1977).

This convergence of human thought and action is also represented in the way in which different organizations, in pursuit of similar goals and operating within the same organizational field, shed their disparate identities and collapse into an institutional environment of homogenized structures, norms, and rituals. Powell and DiMaggio (1991) suggest that the resulting homogeneity, or isomorphism, lends institutions their legitimacy while constraining innovation and future opportunities for change. Secondary education exemplifies the equilibrium produced by conventional structures, “providing reasonable order in situations that require cooperation to be successful,” rather than the rational adoption of technical structures organized to maximize efficiency inherent in classic theoretical assumptions (Crowson et al., 1995, p. 178).

Organizational Isomorphism and Coupling

Powell and DiMaggio (1991) delineate several forces that reduce variety in an organizational field, two of which theoretically account for the isomorphic nature of formal structures in middle schools. First, mimetic systems arise in an environment of institutional uncertainty where structural and goal ambiguity coupled with technical and

cognitive incoherence propels organizations to adopt the processes and pursuits of another (Powell & DiMaggio, 1991). The way in which school configurations for early adolescents have historically changed, ultimately settling upon structures and socialization processes modeled after the modern high school, represents a mimetic approach to compensating for social uncertainty and historical goal conflict within the public K-12 institutional environment (Cuban, 1992). Cuban (1992) characterizes the mimetic influence of high schools on middle years schools as such:

The organizational imperatives toward survival and stability, embedded in a system of schooling where upper grade structures and practices heavily influence lower grades, testify to the power of an institution to transform fundamental reforms into incremental ones (p. 247).

Second, normative pressures characterized by professionalization are persuasive and rational principles for structuring socialization for both teachers and students (Powell & DiMaggio, 1991). Legitimate formal structure embodies disciplinary norms and teacher beliefs that “help create conceptual context within which teachers work” (Grossman & Stodolsky, 1995 p. 5). That is, disciplinary norms and practices converge institutionally resulting in departments of the same discipline resembling one another *across* schools more than they do other departments in the *same* school (Grossman & Stodolsky, 1995). Subsequently, Crowson et al. (1995) suggest, “Organizational managers are unable to move their professional workers very far from the environmental norms of their profession” (p. 174).

New institutional perspectives on the legitimacy of K-12 education have viewed the technical core of teaching and learning in local school organizations as loosely

coupled to the larger institutional environment of fragmented political and bureaucratic state controlled educational production and governance (Crowson et al., 1995; Meyer & Rowan, 2006). Moreover, loose coupling exists in the middle school institutional environment in the way that formal structures like departmentalization persist across schools despite an apparent incompatibility with organizational goals and technical rationality.

Professionalization allows loose coupling between structures and activities to supplant technical efficiency in local organizations (Powell & DiMaggio, 1991). Loosely coupled elements include informal patterns of accountability, coordination, and cooperation (Powell & DiMaggio, 1991). In secondary schools with large staffs and student enrollments, specialized teachers buffer departmentalization from technical evaluation by school-based administrators and central office curriculum specialists (Herriot & Firestone, 1983). Subsequently, teacher-leaders who lack the technical and supervisory status of administrators conduct much of the direct inspection of planning, teaching, learning, and the evaluation of student outcomes in departmentalized schools (Powell & DiMaggio, 1991).

Powell and DiMaggio (1991) suggest, “Decoupling enables organizations to maintain standardized, legitimating, formal structures while their activities vary in response to practical consideration” (p. 58). Thus, departmentalization appears to conventionally organize the powerful norms “regarding teaching practices, curricular autonomy, and coordination” (Grossman & Stodolsky, 1995, p. 8). Middle school teachers are socialized in disciplinary subcultures, which inhere in departmental structures. Underlying professional norms are the alliances and unifying understandings

of departmental subcultures that place a premium on socially mediated approaches to subject matter and teaching and learning (Grossman & Stodolsky, 1995). Powell and DiMaggio (1991) suggest, “The ability to coordinate things in violation of the rules—that is, to get along with other people—is highly valued” (p. 58).

Despite attempts by educational reformers to take aim at bureaucratic formal structures, the history of junior high and middle schools reflects how departmentalization signifies the myths, norms, and rituals surrounding the structural composition of what is considered a real school. While this approach to the work of teaching seemingly eschews technical rationality, for decades it has nonetheless structured and maintained the complex enterprise of middle years schooling in a conventional manner (Crowson et al., 1995). Ultimately, departmentalization is largely responsible for coordinating the roles and responsibilities of teachers and students by imposing socially legitimized structure that has produced decades of stability (Crowson et al., 1995).

Historical Chartering

Meyer (1977) contends that there is significant variance in outcomes between different school types. That is, varying outcomes do not inhere in individual schools, but broadly reflect the differences in how school types are chartered (Meyer, 1977). Thus, “all schools of similar ritual status can be expected to have similar effects” (Meyer, 1977, p. 60). These differences are institutional in nature, defining the social dimensions and structures of local school organizations (Meyer, 1977). Furthermore, the manner in which school types are chartered carries inherent differences in status, socialization, and outcomes.

High schools are chartered to produce high school graduates, the end game of K-12 socialization, while elementary schools are chartered to teach children the 3 *R*'s and socialize them in the norms of civilized behavior (Meyer, 1977). However, middle year's schools still suffer from a lack of historical legitimacy by the uncertain manner in which they were conceived (Cuban, 1992). Further, Meyer and Rowan (1977) posit that institutional myths are chartered as ritual classifications of students, teachers, and curricula. Whereas elementary schools ritualize subjects in standardized curricula, secondary schools allocate specialized roles, status, and departmental structure to different subjects.

The way in which junior high schools were organizationally conceived is derived partially from the institutional legitimacy gained through what Meyer (1977) defines as theories of knowledge and personnel. Historically, the chartering of junior high schools was rife with goal ambiguity while high schools existed as the great success story of American public education in the twentieth century (Cuban, 1992). The way in which junior high schools and eventually middle schools evolved to mimic high schools was the result of the professionalization of personnel and attempts at classic means-end rationality.

First, Cuban (1992) suggests that during much of the evolution of junior high schools, the livelihoods and status allocated to secondary educators surpassed the career trajectories of elementary school teachers and principals. In secondary education, subjects are ritualized through departmentalization and the allocation of specialized teachers possessing authoritative knowledge. Institutional patterns of professionalization included credentialing in subject matter and higher salaries (Cuban, 1992).

Moreover, the chartering of high schools depends upon clearly discernable formal structures linked to a singular outcome: the accumulation of Carnegie units for high school graduation (Cuban, 1992). Conversely, while junior high and middle schools are largely modeled after the structures of high schools, they nonetheless lack a clear and rational end game like graduation. Thus, middle years schools have assumed many of the institutional trappings of high schools, including departmentalization and bell schedules, without the functional rationality largely responsible for structuring the high school organizational environment.

Powell and DiMaggio (1991) ascribe these apparent differences in technical and institutional environments to the ways in which each distinctly conceives rationality. While teaching and learning in high schools may be loosely coupled to technical efficiency, the accumulation of Carnegie units nonetheless signifies a rational arrangement of departmentalized courses that produces a specific and measurable outcome, high school graduation. Conversely, the use of departmentalization in middle schools connotes a *rationale*; legitimacy accounted for in a manner that “makes past actions understandable and acceptable to others,” (Powell & DiMaggio, 1991, p. 124). Thus, departmentalization largely structures the organizational environment of middle schools but lacks means-ends rationality in that it does not produce a discernable outcome like the accumulation of credits for graduation. It instead represents powerful historical myths and taken-for-granted assumptions about how adolescents should learn and teachers should teach (Cuban, 1992).

As formal structure, departmentalization influences the beliefs, norms, and collective behavior of many middle school teachers and administrators (Lee & Smith,

1993). It imparts specialized professional identities to middle school teachers (Grossman & Stodolsky, 1995) and serves as easily recognizable boundaries that divide knowledge, delineate teachers' roles, and circumscribes the school day for early adolescents (Lee & Smith, 1993). Ultimately, it is within the stability of this formal structure that teachers largely develop their approach to imparting subject matter to students while they encounter the constraints it imposes on the social dimensions of the classroom environment.

“Situationally Constrained Choice”

Historically, middle grades reform has produced new school names and grade configurations while the structures in middle schools have continued to exemplify powerful societal myths about how real schools should be structured (Cuban, 1988). As Crowson et al. (1995) asserts, “Once practices and structures are taken for granted, once they are considered natural and legitimate, a search for alternative approaches is uncommon” (p. 195). Therefore, potentially unbinding teaching and learning from the constraints imposed by the institutional legitimacy of middle school structures requires an examination of the influence of the factors that together produce unfavorable effects for many early adolescents.

In a historical examination of constancy and change in teaching, Cuban (1988) suggests that teachers' beliefs and professional norms conform to the organizational structures of schools, producing “practical” patterns of teaching and learning (p. 133). Subsequently, his theory of situationally constrained choice helps explain how differences between elementary and secondary school structures are realized in the differences that exist between teacher beliefs and practices at each level. Further, school

structures are socially legitimated and signify the larger purposes of organizational environments. Once legitimized, school structures appear to be highly resistant to change, resulting in belief systems and pedagogical approaches that are remarkably consistent. In essence, institutionalized structures serve as the “invisible, encompassing environment that few recognize potentially shapes what teachers do daily in classrooms” (Cuban, 1988, p. 263).

If situations determine the constraints placed upon teachers’ beliefs and approaches to instruction, then all teachers are subject to the influence of organizational structure. However, Cuban (1988) argues that elementary school teachers have benefited historically from structures that allow their beliefs about instruction to evolve.

Conversely, Cuban (1988) asserts that the evolution of the beliefs and practices of secondary school teachers is constrained by the following three factors: (a) the way in which time is scheduled for instruction, (b) how content becomes more challenging for students to master, and (c) the pressure produced by organizational arrangements with external institutions.

It is important to note that Cuban’s (1988) third factor includes examples like Advanced Placement (AP), Carnegie units, and the Scholastic Aptitude Test (SAT) that largely do not apply to middle years schools. Nonetheless, scheduling, an increased emphasis on content, and subject specialization for teachers are organizing principles that structure the middle school environment and distinguish it from the way in which elementary schools produce teaching and learning. Cuban (1988) suggests that these structural differences between levels result in seemingly opposite approaches to instruction. Thus, in elementary schools, teachers often use content as the context for skill

development in self-contained classrooms, whereas content and limited time in departmentalized secondary schools circumscribe teachers' choice of methods.

When middle school students transition from class to class, subject-to-subject, teacher-to-teacher, they are enacting a ritual that largely signifies the myths and norms of teaching and learning in secondary schools. Departmentalization produces a rigidly segmented school day that limits contact-time and potentially decreases the flexibility teachers have to provide affective support and implement engaging, student-centered instruction (Becker, 1987; Cuban, 1988). Furthermore, teachers must contend with different peer arrangements in each class and a large number of students across all of their classes. Seemingly, many teachers attempt to manage this workload by exerting more control over the classroom environment by limiting student autonomy, classroom interaction, and relying more heavily on sorting and comparing students through grading. As a result, middle school teachers' relationships with students and their self-efficacy are lower relative to their elementary school colleagues (Eccles et al., 1993).

Finally, research has shown that departmentalized teachers in middle schools place a greater emphasis on performance-oriented grading than elementary school teachers (Midgley, Anderman, & Hicks, 1995). Conversely, Cuban (1988) suggests that elementary school teachers spend five hours of a typical school day with one group of students, allowing them to "see far more of a child's strengths, limitations, capacities, and achievements" (p. 261). Therefore, situationally constrained choice helps explain how instructional practices like performance-oriented grading and heightened classroom control can be viewed as a practical response to the constraints imposed by a bureaucratized organizational environment. Ultimately, within this environment teacher's

social capital originates in their content expertise and not in their understandings of one intact group of students (Cuban, 1998; Eccles, Lord, & Midgley, 1991).

The Middle School Classroom: Cognition, Behavior, and the Environment

Bandura's (1989) theory of learning is deeply rooted in the context of human social interaction and seeks to strike a balance between views of learning as entirely internally shaped and behavior as singularly defined by human response to external stimuli. Bandura (1989) theorized that learning is a complex interaction of cognitive, behavioral, and environmental factors. Triadic reciprocal determinism presumes that the arrangement of these three components of human learning are neither hierarchal nor equally influential, but that "the relative influence of all three sets of interacting factors will vary for different activities, different individuals, and different circumstances" (Bandura, 1989, p. 24).

Bandura (1999) posits that the environment is not merely a "monolithic entity," but instead can be viewed as a reality that can be altered through different levels of human perception and action (p. 23). To this end, social cognitive theory suggests that the environment exists as imposed, selected, or constructed (Bandura, 1999). For example, departmentalization imposes formal institutionalized structure on teachers and students in the way in which bells ring every 47 minutes and students' transition from class to class, teacher to teacher. As such, when the late bell rings, a sixth grade teacher closes and locks the classroom door and takes time to dutifully check homework while students work independently and silently. Thus, the physical and social environment constructed by the teacher helps define the way in which students' cognition, behavior, and specific environmental determinants reciprocally interact with one another (Bandura, 1999).

Social cognitive theory delineates how social modeling, goal setting, self-efficacy, and self-reflection mediate learning (Bandura, 1989). These social cognitive processes exemplify the ability of humans to both learn from the behavior of others while consciously managing and analyzing their own thoughts and beliefs. Bandura (1989) suggests that social modeling is “an indispensable aspect of learning” whereby human behavior and thought can be made manifest and thus serve as shapers of the behavior and thoughts of others (p. 20).

While the influence of social models on human learning is uniquely powerful, the ability of humans to mediate their own beliefs and perceptions related to their thinking and behavior is equally as important. Bandura (1993) posits that self-efficacy is an integral psychological process whereby people judge their own abilities and efforts and regulate their perceptions of self and their own agency within the environment. As Bandura (1989) states, “in their daily transactions, people act on their thoughts and later analyze how well their thoughts have served them in managing events” (p. 21). Therefore, perceived self-efficacy has a strong influence on the types of goals people set for themselves and the way in which they exercise control over their thinking and behavior (Bandura, 1993).

Triadic reciprocal determinism provides a model for how students’ behavior, cognition, and the classroom environment exist as reciprocal determinants (Bandura, 1989). Furthermore, it theoretically accounts for the process of change in the manner in which it models the dynamism of interacting psychosocial influences. Teachers have a significant impact on the way in which students think, feel, and behave in school. To this end, situationally constrained choice forces teachers to develop and employ a practical

pedagogy that negatively influences students' perceptions of the classroom environment and their engagement and achievement (Bandura, 1993; Cuban, 1992).

This study seeks to use new institutionalism and social cognitive theory as lenses to identify where the needs of students and the norms, beliefs, and behavior of teachers in the middle school institutional environment become distinctly different and potentially incompatible. First, social cognitive theory will be used to explain how middle school structures influence students' engagement, achievement, and perceptions of the classroom environment. Second, new institutionalism will be used to explore how the legitimacy of organizational structures like departmentalization persists in shaping the norms, beliefs, and behaviors of teachers. Finally, it is the intent of this study to reveal how departmentalization could be decoupled from local school organizational contexts and in effect, initiate broader institutional change.

Statement of Problem

Evidence suggests that there are institutional forces that influence the quality of the technical core of teaching and learning in middle schools (Becker, 1987; Beachum, Denith, McCray, & Boyle, 2008; Eccles et al., 1991; Eccles et al., 1993; McPartland, 1987; Midgley et al., 1995). Institutional structures like departmentalization shape the social dimensions of classroom instruction, drive the way in which work is accomplished, and contribute to an institutional environment that does not match the developmental needs of many early adolescents (Alspaugh & Harting, 1998; Becker, 1987; Eccles et al., 1991; Eccles et al., 1993; McPartland, 1987; Midgley, Feldlaufer, & Eccles, 1989). As such, students in departmentalized middle schools have diminished perceptions of the classroom environment, experience declines in school engagement, and display lower

achievement compared to students who have not experienced a structural school transition (Alspaugh & Harting, 1998; Becker, 1987; Eccles et al., 1991; Eccles et al., 1993; McPartland, 1987; Midgley et al., 1989).

Review of Literature

Researchers have extensively documented the impact of structural school transitions and the grade configuration of middle year's schools as drivers in student's progressive alienation in secondary education (Alspaugh & Harting, 1995; Rockoff & Lockwood, 2010). While these factors help define the dimensions of the problem, they nonetheless stop short of adequately focusing on what students actually experience when they enter middle school. Therefore, related research will be reviewed to theoretically and categorically examine organizational structures and social dimensions that are most associated with declines in student engagement, disappointing achievement outcomes, and negative perceptions of the classroom environment in middle schools.

Environmental Determinants in Middle School Classrooms

In social cognitive theory Bandura (1989) posits that cognition, behavior, and the environment exist as reciprocal determinants that interact to shape learning. In sixth grade, students experience a significant shift in the way in which school is organized for instruction. Middle school teachers possess more of a subject-orientation than elementary school teachers (McPartland, 1987). Furthermore, this change in collective norms and beliefs adheres to bureaucratic aspects of the school day including rigid instructional schedules, limited contact time between teachers and students, and an erosion of the social dimensions of classroom life (Cuban, 1988; Eccles et al., 1993; McPartland, 1987).

These constraints may propel middle school teachers to focus more on student performance and instructional control while reducing their self-efficacy and their ability to fully engage students' cognition and behavior (Eccles et al., 1991; Eccles et al., 1993). Braddock and McPartland (1993) suggest, "From the students' perspective, specialized teachers may seem more interested in impersonally grading and sorting them than in taking personal interest in their learning and sharing responsibility for their success or failure" (p. 140).

Wang and Holcombe (2010) delineate five classroom environmental determinants that align with social cognitive theory and influence students' perceptions of the middle school classroom environment and their engagement and achievement: performance goals, mastery goals, teacher affective support, student autonomy, and classroom interaction and discussion. We will review the literature on the association between these factors and the change in organizational structure that students' experience when they transition from largely self-contained elementary school classrooms to departmentalized middle schools. Finally, this study extends Wang and Holcombe's analysis by utilizing a randomized control trial in two middle schools to assess the impact of semi self-contained learning communities on students' perceptions of the classroom environment and their engagement and achievement.

Performance and Mastery Goal Orientations

Pedagogical approaches to goal setting change significantly from elementary to middle school and result in corresponding changes in adolescent engagement and achievement (Anderman, 2003; Eccles et al., 1993; Midgley et al., 1989). The two primary goal structures that are frequently explored in the literature on middle school

classroom effects are mastery and performance goals. The degree to which individuals cognitively develop challenging goals for themselves and actively pursue them through self-regulated behavior largely depends on self-efficacy beliefs (Bandura, 1993). As such, Bandura (1993) states, “People make causal contributions to their own functioning through mechanisms of personal agency” (p. 118).

Mastery goals are manifested from individuals’ beliefs about the nature of intelligence (Bandura, 1993). When children believe that ability includes an additive process of acquiring knowledge and skills, they formulate increasingly difficult goals, both developed and realized through strong beliefs in the effects of their own agency (Bandura, 1993). Furthermore, mastery goals are cognized in such a way that internal evaluative processes and norms serve as a reference for organizing the requisite behaviors required to fulfill them (Bandura, 1993; Urdan & Schoenfelder, 2006). Thus, a mastery goal orientation is signified by individual persistence and the use of self-regulatory processes towards accomplishing goals that are personally fulfilling (Bandura, 1993). Conversely, performance goals are developed through norms of interpersonal comparison, competition, and the evaluation of performance against external standards of success (Urdan & Schoenfelder, 2006). Furthermore, the prevalence of performance goals in middle school classrooms deemphasizes critical motivational and cognitive processes (Bandura, 1993; Wang & Holcombe, 2010).

Middle school instructional practices that emphasize performance and competition negatively influence students’ self-efficacy beliefs and self-regulation (Wang & Holcombe, 2010). Wentzel and Wigfield (1998) find that middle school students’ social and academic goal pursuit is related to their relative levels of academic

achievement. To this end, students' development of mastery goals is not isolated from the social dimensions of classroom contexts. Instead, the development and pursuit of both goal types can be seen as the effects of the reciprocal social influences of teachers and peers (Wentzel & Wigfield, 1998).

Midgley et al. (1995) conducted one of the few studies that expressly examined differences that exist between goal types in elementary and middle schools. The authors surveyed teachers at both school levels to assess the types of goals that orient the two different instructional environments. Further, the authors' examine the association between different goal types and teacher and student self-efficacy (Midgley et al., 1995). The study concludes that middle school teachers and students view their school culture to be more oriented toward performance goals than elementary school teachers and students (Midgley et al., 1995).

In light of their findings, which also indicate that middle school teachers feel significantly less efficacious than elementary school teachers, Midgley and colleagues (1995) discuss the literature on the superficial cognitive and behavioral processes associated with performance goals. The shift from mastery-oriented goals that encompass self-improvement strategies and deeper comprehension processes in elementary school to performance goals in middle school corresponds with students' perceptions that their teachers are not as supportive or as focused on their inherent potential to master rigorous curriculum (Midgley et al., 1995).

Furthermore, the combination of less efficacious teachers in middle school and the premium placed on performance impacts students' beliefs about the potency of their effort and their relative ability (Urdan & Schoenfelder, 2006). As Bandura (1989)

suggests, “Self-comparison of improvement in a personalized classroom structure raises perceived capability” (p. 67). Conversely, instructional approaches that stress performance and peer comparisons (e.g., grades, honor rolls) appear to have the opposite effect on students’ perceptions of the classroom environment and their engagement and achievement (Anderman, 2003; Bandura, 1989; Wang & Holcombe, 2010).

Teacher Affective Support

The beliefs and instructional practices of teachers adhere tightly to discipline-specific teaching roles in middle schools (Fulmer & Turner, 2014; Grossman & Stodolsky, 1995). Teaching and learning in different disciplines involves “numerous elements including the content, the academic tasks students work on, teaching strategies, ways of representing ideas to students, student grouping practices, and student work assignments” (Meyer & Rowan, 2006, p. 87).

In some cases, positive student-teacher relationships appear to be negatively impacted by the specialization departmentalized staffing provides for teachers. Different disciplines become different courses, which in turn require the secondary school day to be regulated by bell times and class transitions. Ironically, the middle school institutional environment allocates status and legitimacy to disciplines through departmentalization, but some students seemingly end up disliking specific classes based on their perception that teachers are not as supportive (Eccles et al., 1991; Wentzel et al., 2010).

Large, departmentalized middle schools potentially decrease the efficacy of teachers to comprehend the personal, social, and academic needs of students and align both instruction and affective support to meet those needs (Eccles et al., 1993; Mac Iver & Epstein, 1993; McPartland, 1987). Sakiz, Pape, and Woolfolk Hoy (2012) find that

middle school students who report higher teacher affective support also report stronger feelings of belonging, self-efficacy, and decreased academic hopelessness. Furthermore, Sakiz et al. (2012) suggests that both disciplinary specialization and teacher belief systems compromised by adolescent stereotypes may interfere with teachers' willingness to provide the kinds of affective support that are needed to activate important psychosocial skills.

Danielson, Wium, Wilhelmsen, and Wold (2010) find that pedagogical caring and autonomy support outweigh the positive influence of peers and has a significant effect on students' academic initiative. This study was conducted with 1599 participating early adolescents in Norway in a hybridized organizational arrangement that combined elements of interdisciplinary team teaching with departmentalization (Danielson et al., 2010). Students typically had three to four different subject teachers who rotated amongst stable classes. The findings present a clear picture on the role teacher support plays in mediating academic initiative at the class level. However, Danielson et al. (2010) also establish that the relationship between teacher affective support and academic initiative varied significantly across classes.

In one of few studies expressly designed to account for the possible effects of departmentalization on student-teacher relationships, McPartland (1987) finds that both large cohort size and departmentalization are significantly associated with declines in student perceptions of their relationships with teachers in grade 6. As such, departmentalization and school size may impact student perceptions of their relationships with teachers in complementary ways. Departmentalization is most practical as a middle school structure when larger enrollments warrant subject specialization. Thus,

departmentalization and school size interact to produce increased student alienation when teachers have to account for the affective and academic needs of more students (McPartland, 1987).

Yet, McPartland (1987) does not control for the possible impact that different course assignments for teachers could have on their ability to provide affective support to students. In departmentalized middle schools, teachers often have to teach different courses within the same discipline and in some cases, courses in different disciplines for which they have little to no training or credentialing. In their study on implementing high-quality mathematics curriculum in three high poverty urban middle schools, Balfanz, MacIver and Byrnes (2006) find that several of the teachers had mixed teaching assignments, with mathematics often being the course in which they were least qualified to teach. Hence, departmentalization in some middle schools requires teachers to balance the curricular and instructional demands of multiple subjects across more students.

Eccles et al. (1993) find that the deterioration of adolescent motivation in middle schools is linked to institutional approaches to teaching, learning, and organizational structures (e.g. across-class ability tracking and departmentalization). The authors' draw stark contrasts in patterns of teacher beliefs and practices between elementary and middle. Results of a two-year longitudinal study of 12 middle and lower-middle income school districts in Michigan suggest that there is a relationship between reduced student motivation in middle school and variables like heightened teacher control, lower teacher self-efficacy, and low quality student-teacher relationships (Eccles et al., 1993). In particular, the authors' find that student-teacher relationships deteriorate after the transition from elementary to middle and junior high schools and lower-achieving early

adolescents are disproportionately impacted (Eccles et al., 1993). Furthermore, students who transition from high-support teachers in the terminal grade in elementary school to low-support teachers in a new school report declines in their valuing and motivation towards mathematics (Eccles et al., 1993).

In so much that Danielson et al. (2010) and Wentzel et al. (2010) find that stronger student perceptions of teacher affective support tends to exist through “systematic agreement between students in a class,” (p. 259) neither of these studies directly account for the association of formal structure with teacher beliefs and patterns of instruction. As Danielson et al. (2010) suggests, variance in student perceptions across classes could be related to a several different unobserved factors. However, based on these findings, it is fair to wonder to what extent departmentalization influences between class differences in students’ perceptions of peer arrangements and the fairness and affective support of their teachers.

Ultimately, these findings underscore the importance of further isolating specific patterns of teaching and learning and their effects in departmentalized classrooms. Furthermore, identifying teacher beliefs and behaviors that sustain positive student relationships within departmentalized structures could provide a blueprint for teacher recruitment, professional development, and the assembling of organizational norms and rituals that place equal emphasis on relationships and achievement. As Bandura (1989) contends, “When social ties are weak or lacking, vulnerability to deleterious fortuitous influences is increased” (p. 8).

Student Autonomy

For decades, research has often situated students' need for autonomy in a developmental framework that includes goal structures, student-teacher relationships, and students' need for social and academic interaction in classrooms (Eccles et al., 1993; Wang & Holcombe, 2010). As such, student autonomy is frequently included in the literature as an important psychosocial domain associated with self-regulation, motivation, and engagement (Reeve, 1998). Furthermore, research suggests that strong student-teacher relationships and support of autonomy are strongly associated with one another in predicting students' cognitive and behavioral engagement during middle school (Wang & Holcombe, 2010; Way, Reddy, & Rhodes, 2007).

Students' desire for influence over classroom decision-making related to their learning and behavior increases during early adolescence (Eccles et al. (1991). The way in which schools meet this emerging need is represented in the literature as a tenuous balancing act between students' need for autonomy and a high degree of school and classroom structure (Eccles et al., 1991). That is, the middle school environment provides opportunities for autonomy that potentially conflict with where and when students need it most.

While the degree to which teachers encourage autonomy in classrooms appears to decline in middle school, students have more autonomy during unstructured times like lunch and class transitions. Therefore, unstructured and chaotic settings often signified by fighting, teasing, and an emphasis on self-regulated navigation of the school allow for autonomy but end up producing feelings of threat, stress, and discomfort in many students (Ellerbrock & Kiefer, 2013; Rudolph, Lambert, Clark, & Kurlakowsky, 2001;

Weiss & Kipnes, 2006). When the bell rings and depending on which class they enter, some students are greeted by instructional practices like lectures and mundane independent seatwork aimed at systematically controlling the classroom environment (Eccles et al., 1991; Mac Iver & Epstein, 1993; Yair, 2000). The juxtaposition of hallways and lunchrooms with instruction captures the broader reality of the middle school environment. That is, when students are given freedom to interact with one another, adults and academic pursuits are largely uninvolved. But when students are under the direction of teachers, they lose a significant measure of autonomy for the purpose of learning.

When teachers develop learning environments that encourage decision-making, students are more intrinsically motivated and self-determined in the tasks they undertake in the classroom environment (Reeve, 1998). Subsequently, the development of personal agency and efficacious behavior are linked to the way in which teachers actively promote autonomous behavior as an element of instructional practice (Yair, 2000). Conversely, when students experience a decline in control over their learning signified by reduced opportunities to make decisions related to tasks, their interest in specific subject matter appears to decline as well (Eccles et al., 1993).

Roesner and Eccles (1998) find that provisioning for autonomy is positively associated with students' emerging sense of competence as they adjust to a new school environment. However, the relationship between autonomy and other outcome constructs like cognitive engagement and school adjustment is somewhat uneven. Roesner and Eccles (1998) and Wang and Holcombe (2010) both suggest that the explanatory power of measuring students' perceptions of autonomy may in fact be diminished by a

subsequent overlap with the underlying processes of goal structures and students' perceptions of support afforded by teachers.

In an international study on classroom environmental determinants, Jai et al. (2009) examine differences in Chinese and U.S. middle school students' perceptions of autonomy and peer and teacher support. Contrary to common misconceptions about differences in schooling between Asian countries and the U.S., the authors' find that early adolescents in China are afforded more opportunities for autonomy than U.S. students and are subsequently involved in a host of autonomous behaviors that are largely not available to students in U.S. classrooms (Jai et al., 2009). Jai et al. (2009) utilize interviews and observations to reveal that Chinese students regularly assist teachers with classroom activities and the management of classroom groups, while regularly engaging in class meetings where students express their opinions about rules and decide on classroom activities.

Like Wang and Holcombe's (2010) unrealized prediction that increased autonomy positively impacts self-regulation and achievement, Jai et al. (2009) were also surprised to find that student autonomy is associated with lower GPA's for both U.S. and Chinese students. As such, it is fair to speculate that had the authors' assessed the association between autonomy and emotional and behavioral engagement, they might have found compelling evidence that Chinese students' higher levels of autonomous behavior positively impact school identification and participation.

The constellation of classroom determinants included in this study is in part derived from the important research of Midgley, Feldlaufer, and Eccles (1989) that evaluated differences in beliefs between elementary and middle school teachers. The

need of middle and junior high school teachers who possess significantly lower levels of self-efficacy to exert control over students was a hallmark of their study (Midgley et al., 1989). The authors' find that significant school-level differences exist in teachers' self-efficacy and beliefs about controlling and trusting students even when accounting for the effects of teacher training and certification (Midgley et al., 1989). In addition, Midgley et al. (1989) consider whether lower teacher self-efficacy and an increased need for control could be "situation specific" and possibly linked to the departmentalized structures in all of the schools in the study (p. 555). However, the authors' pivot toward both negative adolescent stereotypes within society and deleterious cultural stereotypes endemic to high minority and poor middle schools as possible sources of teachers' beliefs about the need to control students (Midgley et al., 1989).

Finally, this argument loses sight of the instructional constraints placed upon teachers' by bell times, numerous classes, and professional identities and pedagogy "mediated through individual teachers' own conceptions of subject matter," (Grossman & Stodolsky, 1995, p. 10). Subsequently, it is instructive to consider that two groups of teachers, each in a different school type, perceived their own efficacy and the needs of the same group of students in significantly different ways. This is especially salient in light of the fact that departmentalization exists as the primary difference between how the two school types organize teachers and students for instruction.

Classroom Interaction

Bandura's (1989) social cognitive theory posits that the social dimensions of the environment influence students' self-efficacy beliefs, goal development, and personal agency. That is, early adolescents gauge their self-efficacy by comparing their actions

and thoughts against those of their peers and teachers (Bandura, 1989). Bandura (1989) suggests, “age-mates provide the most informative points of reference for comparative efficacy appraisal and verification (p. 64). Furthermore, context-specific verbal persuasion and mastery experiences provide students with critical information about the potential effects of their own agency (Bandura, 1989). Subsequently, verbal modeling by both peers and teachers allows students to observe and in turn incorporate critical standards for self-evaluation and problem solving into their own cognitive processes (Bandura, 1989).

Findings on the prevalence of classroom social discourse and interaction in middle schools is mixed. In the early 1990’s, Mac Iver and Epstein (1993) asserted that middle schools are characterized by teacher-centered instruction focused on basic facts, computation, and a preponderance of passive learning. However, in the analysis of the most recent survey data from a series of longitudinal studies on 827 middle level schools, McEwin and Greene (2011) report the regular use of cooperative learning strategies in middle level schools increased from 50% in 1993 to 64% in 2009. In a concurrent study on highly successful middle schools (HSMS), an analogous survey instrument was used to gauge the implementation of recommended elements of middle years programs. This study revealed that 85% of HSMS regularly employ cooperative learning strategies (McEwin & Greene, 2011).

A qualitative analysis, however, on leadership and pedagogy in a mostly African American urban middle school tells a different story about the social dimensions of classroom learning. Beachum et al. (2008), find a pervasive emphasis on both school-wide and classroom based discipline measures. Much of this emphasis on discipline and

control seemed to originate with the vision and practices of the principal and it affected both informal and formal verbal exchanges between students and peers (Beachum et al., 2008). The authors' observations of classroom instruction suggest that teacher-centered instruction was characterized by pedagogical control, individual seatwork, and a lack of affective support to mediate student interaction and discussion (Beachum et al., 2008). As a result, students often appeared disengaged with very little opportunity for social discourse and group work (Beachum et al., 2008)

In a case study on teaching, learning, and professional development in a moderate sized middle school in the Midwest, Fulmer and Turner (2014) analyze teachers' perceptions related to implementing challenging instruction. The authors' examine teachers' thoughts and feelings by categorizing their responses according to three different dimensions of pedagogical pressure: pressure from above (curriculum, time, testing), pressures from within (low teacher self-efficacy), and pressures from below (unmotivated and low-achieving students).

The teachers' responses seem to suggest a state of situationally constrained choice produced in part by the limited time and subject specialization associated with departmentalization (pressure from above). Subsequently, teachers employ a practical pedagogy that reflects low self-efficacy and an unwillingness to combine middle school content with student-centered instructional strategies (pressure from within) (Cuban, 1988). For example, one teacher is uncomfortable with classroom discussion and group work on account of having to change seating arrangements to support student interaction (Fulmer & Turner, 2014). In another instance, an English teacher feels a loss of control at the prospect of students' arriving at wrong answers when given extra time to engage in

class discussions (Fulmer & Turner, 2014).

Overall, teacher responses seem to suggest a profound disassociation between their control oriented instruction and what they perceive as mostly disaffected early adolescents. In addition, the teachers report that when they do attempt to facilitate discussion and group work, students are often resistant, disengaged, or afraid of failure (pressure from below) (Fulmer & Turner, 2014). This reciprocal interaction of classroom determinants seems to suggest that students' cognition and behavior negatively influences the self-efficacy of teachers who in turn implement instruction that is control oriented and inhibits discourse (Bandura, 1989). Ultimately, this illustrates the challenges inherent in developing a student-centered pedagogy when the attendant organizational structure does not provide the time, flexibility, and context to develop a community of learners.

From a student perspective, Ryan and Patrick (2001) find that student interaction in seventh and eighth grade math classes is correlated to multiple measures of motivation and engagement and is especially influential on students' perceptions of their interactions with teachers. The authors' find that the role teachers' play in facilitating mutually supportive classroom environments is especially influential on students' self-regulation and academic self-efficacy. As such, the authors also find that teachers' encouragement of class discussion does not lead to increases in disruptive behavior (Ryan & Patrick, 2001). This aligns with Wang and Holcombe's (2010) assertion that students report increased self-regulation and school identification when teachers' facilitate classroom discussion and interaction. Thus, not only does classroom discussion positively influence students' behavior and cognition, but it also appears to have a significant impact on the extent to which students' identify with school and interact with their teachers (Ryan &

Patrick, 2001; Wang & Holcombe, 2010).

It is apparent that students' encounter significantly different classroom environments when they transition to middle schools. As such, changes in teachers' self-efficacy and pedagogy are associated with declines in students' perception of the classroom environment and progressive disengagement and loss of achievement. Middle school pedagogy, signified by control-oriented instruction, an emphasis on student performance, and an erosion of relationships, reflects the constraints imposed on teaching and learning by bureaucratic formal structures. It is within this crucible of formal structures and pedagogy that students begin to become alienated from the norms and rituals of education.

Engagement

In their analysis of the effects of the middle school restructuring movement on nationwide patterns of student achievement and engagement, Lee and Smith (1993) contend, "Little research has investigated the results of reducing the rigid structure of secondary-school academic departments on the outcomes of schooling for either students or teachers," (p. 167). Lee and Smith (1993) posit that the historical ideal of the rational bureaucratic secondary school included rules, rituals, and the status of teachers as determinants that governed "affectively neutral" relations amongst teachers and students (p. 165).

As formal structure, departmentalization has historically been used to organize teachers for instruction and helped define the boundaries of the "patterned relationships" that exist within classrooms and schools (Lee & Smith, 1993, p. 166). Social factors also play a vital role in the acquisition of knowledge and are of equal import as the facts,

generalizations, and structures inherent in different domains. Anderman (2003) posits that “Schools are institutions within which academic and social dimensions are inherently intertwined and, thus, one should expect that both academic and social variables to predict the sense of belonging” (p. 6). For many students, a sense of engagement in the rituals, rules, and norms that guide academic and social pursuits in middle school begins to decline.

The Multi-Dimensional Nature of Engagement

Engagement is viewed as a dynamic disposition that changes in relation to environmental factors (Fredrick, Blumenfeld, & Paris, 2004). If schools are comprised of determinants that produce thoughts and feelings of alienation, then altering school and classroom organizational contexts has the potential to provide a more in-depth understanding of the multidimensional nature of engagement. As a result, the implications of the association between middle school structures and student engagement hold particular importance in understanding the mismatch that exists between the needs of early adolescents and the environmental determinants present in middle school classrooms.

Fredrick, Blumenfeld, and Paris (2004) define engagement as a psychosocial construct comprised of three dimensions: behavior, emotion, and cognition. In this study, we also include social engagement as a fourth dimension based partly on findings from qualitative interviews with students on the nature of school engagement conducted by Wang, Fredricks, Ye, Hofkens, and Linn (2016). Wang et al. (2016) found that students view social interaction and relationships with peers and non-parental adults as a critical dimension of their classroom experiences. Moreover, Ryan and Patrick (2001) showed

that disruptive behavior does not increase when students are encouraged or allowed to socialize during tasks and that teachers play a vital role in fostering mutually supportive and pro-social classrooms. Finally, the design and implementation of Project SUCCESS in this study is largely based on the assumption that semi self-contained classrooms in elementary schools are more effective in promoting positive social pursuits and goals than business-as-usual departmentalized settings in middle schools (Summers, 2006).

Behavioral engagement is a multifaceted construct and includes school participation that can largely be categorized by its relative strength or intensity. For example, abiding by classroom rules or dutifully completing class work are behaviors that require less intensity or commitment than campaigning to be the student government president (Fredrick et al., 2004). Subsequently, higher order participation “indicates a qualitative difference in engagement in terms of greater commitment to the institution” (Fredrick et al., 2004, p. 62).

Emotional engagement is often used to signify school identification or a sense of belonging. Frederick et al. (2004) suggests that some studies consider aspects of motivation to be synonymous with indicators of emotional engagement. However, aside from specific domains like *value* or *interest*, the emotional dimension of engagement is relatively broad. Unlike most studies that utilize engagement as an outcome, Wang and Holcombe (2010) explore whether engagement mediates the association between classroom environmental determinants and student achievement. Wang and Holcombe (2010) use the concept of *relatedness* to explore emotional facets of engagement that characterize an individuals’ sense of connection to peers and teachers in classroom environments.

Cognitive engagement encompasses several different psychosocial dimensions that have implications for teaching, learning, and the structuring of classroom environments. Self-regulating cognitive processes and beliefs related to one's own abilities to strategically pursue and master challenging learning tasks are frequent constructs in the literature on cognitive engagement (Fredrick et al., 2004).

Adolescents who are strategic learners “plan, monitor, and evaluate their cognition when accomplishing tasks” (Fredrick et al., 2004, p. 64). These meta-cognitive strategies are frequently embedded in goal structures in the literature on classroom practices and engagement (Bandura, 1993; Fredrick et al., 2004; Ryan & Patrick, 2001; Wang & Holcombe, 2010). Wang and Holcombe (2010) find that teachers' emphasis on performance goals in middle school classrooms is negatively associated with students' participation (behavioral engagement), school identification (emotional engagement), and achievement (cognitive engagement).

Progressive School Disengagement

Entering middle school disproportionately impacts students who are particularly vulnerable prior to the transition (Rudolph et al., 2001). Evidence also indicates that a progressive disengagement from school traces students' climb from middle through high school (Wang & Eccles, 2012). In a longitudinal study straddling the transition from grade 5 to 6, Rudolph et al. (2001) examines students' academic and emotional engagement as a function of maladaptive self-regulatory strategies. Results indicate that maladaptive self-regulatory strategies are linked to negative student effects when students transition to a middle school but not when they remain in the same school environment (Rudolph et al., 2001). Subsequently, students who report vulnerability prior to the

transition, also report an increase in school dissonance after arriving in the middle school environment. These effects include problems navigating class transitions and increased stress from managing multiple teacher expectations, schedules, and assignments (Rudolph et al., 2001).

Using a subset of a larger longitudinal study on middle school student motivation and instructional practices, Anderman (2003) uses data from seven grade 6-8 middle schools that are a mixture of both rural and urban educational settings. In this study, the author examines potential factors associated with students' sense of belonging in middle school. Results indicate a decline in mean scores for students' sense of belonging from the spring of grade 6 to the spring of grade 7. Students who perceive their learning experiences to be focused more on mastery-oriented goals possess a stronger sense of school belonging (Anderman, 2003). Furthermore, students' perceptions of their grade 6 teachers' ability to foster mutually respectful classrooms was associated with a smaller decrease in students' sense of school belonging. Subsequently, Anderman's (2003) findings also suggest that teachers who provide mutually supportive classroom settings serve as a partial agent against students' emotional disengagement over time.

Using a longitudinal student-level data set from the School District of Philadelphia, Balfanz, Herzog, and MacIver (2007) develop a set of four predictors that explicate specific behavioral, emotional, and cognitive dimensions of school engagement for a cohort of over 12,000 sixth grade students. The authors use attendance data, English and mathematics course grades, and school suspensions in grade 6 as predictors of on-time graduation or graduation within one year of expected graduation (Balfanz et al., 2007). Balfanz et al. (2007) suggest that the transition to middle school, including a greater

emphasis on grades, and the increased influence of deleterious social factors, begin to diminish important agents that bond students to school.

The existence of one or more of the predictors in grade 6 accounts for 60% of the students in the cohort who fail to graduate within one year of on-time graduation (Balfanz et al., 2007). Furthermore, of the 11% of students in the cohort who displayed cognitive disengagement in failing sixth grade English, only 18% of these students graduated from high school within a year of on-time graduation (Balfanz et al., 2007). While students' annual behavior marks in each class did not possess the predictive power of attendance, course grades, and suspensions, sixth grade teachers' assessment of students' behavioral engagement still had significant import for high school graduation. For example, receiving a single poor behavior mark in one course during sixth grade netted a larger yield, nearly 5,000 students, than failing course grades, poor attendance, and suspensions combined (Balfanz et al., 2007).

The findings of both Anderman (2003) and Balfanz et al. (2007) reinforce the academic and psychosocial vulnerability that appears to be surfaced in some students by transitioning to a new organizational environment. Once disengagement becomes more pronounced in the middle school setting, recent research suggests that it becomes progressively worse in successive grades. In a study that traverses middle to high school, Wang and Eccles (2012) investigate relationships between different dimensions of school engagement and various forms of social support. Once again, the impact of teachers as a protective factor against school disengagement is consistently greater than other variables such as peers and parents (Anderman, 2003; Wang & Eccles, 2012). Wang and Eccles (2012) posit that apparent differences between elementary and middle school structures

and classroom environments may contribute to the progressive disengagement many students experience once they enter secondary schools. Ultimately, these findings clearly characterize the impact teachers have on the multidimensional nature of school engagement and indicate how positive changes in middle school classroom contexts could increase engagement.

Anderman's (2003) analysis of the onset of student disengagement further explicates the timing of this decline with students' transition to middle school. Wang and Eccles (2012) argue that unlike elementary schools, "middle and high schools are more departmentalized, larger, and more performance oriented," potentially diminishing the capacity of both adults and students to develop relationships that support engagement (p. 889). Finally, the alienation that many students experience after they transition from elementary to middle school is accompanied by relatively lower levels of achievement compared to early adolescents who remain in the same school.

Relatively Lower Levels of Achievement

Research and renewed discourse on grade level configuration and school transitions (Rockoff & Lockwood, 2010; Schwerdt & West, 2011) once again focuses on the impact of how schools are configured while largely overlooking the impact of organizational structures like departmentalization on the success of students in middle school. As such, the analysis of the literature on achievement will examine differences in achievement amongst K-5, K-8, and 6-8 middle schools and factors like larger school size and lower socioeconomic traits that appear to often be associated with the 6-8 middle school model.

Outcomes Produced by Different School Types

In their research on different outcomes produced by different school types, Schwerdt and West (2011) find that while students make more progress in K-5 elementary schools than their peers in K-8 schools, most if not all of this early advantage is lost upon entry into 6-8 middle schools. The authors conclude, “results suggest that structural school transitions lower student achievement but that middle schools in particular have adverse consequences for American students” (Schwerdt & West, 2011, p. 23). In addition, Bedard and Do (2005) posit that the relatively lower levels of achievement that many students first experience in middle school persists into high school resulting in lower rates of on-time graduation. Thus, if on-time graduation exists as an achievable educational benchmark for lower performing students, the authors suggest that districts that rely on middle schools run an increased risk of losing these students as drop-outs (Bedard & Do, 2005).

Alspaugh (1998) also finds a statistically significant lower level of achievement after the transition from elementary to middle school. This study utilized a sample that included three groups of 16 school districts in geographic areas that would be considered rural. While the sample potentially presents different variables than would a similar study of suburban or urban school districts, it nonetheless presents a consistent analysis of standardized achievement measures commonly used in school systems. Alspaugh (1998) finds that students who make a linear transition from a single elementary school to one middle school outperform students who transition from multiple elementary schools to one middle school. Furthermore, much like the findings of Bedard and Do (2005),

Alspaugh (1998) concludes that students who transition from middle to high schools display lower achievement than students who transition to high school from K-8 schools.

In a sampling of urban schools in Philadelphia, Byrnes and Ruby (2007) find newly developed K-8 schools produce only slightly better results than 6-8 middle schools. Interestingly, Byrnes and Ruby (2007) reveal that only older, well-established K-8 schools produce significantly better achievement outcomes than 6-8 middle schools in Philadelphia. The authors suggest that the similarity in outcomes between new K-8 and older middle schools are largely attributable to comparably impacted student populations and larger enrollments (Byrnes & Ruby, 2007). This evidence raises significant questions about the merits of reconfiguration to K-8 schools if grade span advantages do not significantly outweigh the effects of socioeconomic and school size factors.

In an effort to quantify the effects of different grade configurations on student outcomes in the New York City Public Schools, Rockoff and Lockwood (2010) find that “grade 8 students entering middle school in grade 6 are estimated to underperform by 0.172 standard deviations in math and 0.140 standard deviations in English” (p. 9). Furthermore, Schwartz, Stiefel, Rubenstein, and Zabel (2011) conclude that students who remain in K-8 schools and those who transition from K-4 to 5-8 intermediate schools outperform students in 6-8 middle schools in New York City. Schwartz et al. (2011) also posit that middle school effects are particularly egregious for the cumulative achievement of at-risk students. Contrary to the modest achievement gains Byrnes and Ruby (2007) document in newer, bigger, and largely poor K-8 schools in Philadelphia, Schwartz et al. (2011) contend that K-8 and 5-8 schools in New York produce larger gains for a similarly impacted population of students than do 6-8 middle schools.

While Weiss and Kipnes (2006) did not find significant differences in student achievement outcomes in their research on grade 6-8 and K-8 schools in Philadelphia, they did find that negative perceptions of threat and student safety are higher in 6-8 middle schools. Comparing the findings of Weiss and Kipnes (2006) and Byrnes and Ruby (2007) in their research on Philadelphia schools suggests that positive effects of grade span may not compensate for other factors like poverty and school size that negatively influence student achievement.

School and Cohort Size

Both Byrnes and Ruby (2007) and Weiss and Kipnes (2006) indicate that factors like poverty and school size interact to create conditions that to some extent threaten the academic success and psychosocial well-being of early adolescents more than K-8 schools (Eccles et al., 1991; Weiss & Kipnes, 2006). While extensive examination of the effects of school and cohort size are beyond the scope of this study, it is nonetheless important to briefly describe how these factors are well documented features of middle schools and as such, associated with relatively lower student achievement.

For example, In Philadelphia, Weiss and Kipnes (2006) find that the average middle school contains four times as many grade 8 students as the average K-8 school. Rockoff and Lockwood (2010) find that significantly larger cohort sizes in grade 8 in middle schools could account for a decrease in student achievement of 0.04 standard deviations, a relatively small but significant portion of established reduction in student achievement. Additionally, Weiss and Kipnes (2006) suggest that “larger school size is associated with worse grades, higher odds of failure, and other outcomes is of potential importance and is consistent with other research on school size” (p. 267).

Historically, grade span and larger school size have both been factors associated with the employment of departmentalization, across-class ability grouping, and an increased likelihood that students receive instruction from multiple teachers (McPartland, Coldiron, & Braddock, 1987). Thus, to some extent it appears that the unwieldy nature of large middle schools comprised of significantly more students per grade level is associated with more use of bureaucratic formal structures and lower achievement relative to K-8 schools (Eccles, et al., 1993; McPartland et al., 1987). In addition, alternative structural elements like interdisciplinary teaming were an explicit aim of the middle school movement to compensate for the impersonal nature of large junior high schools (Arhar & Kromrey, 1993). Thus, the best way in which to compensate for the psychosocial and achievement outcomes related to the size of junior high and middle schools has been a longstanding debate in middle level schooling.

In summary, achievement comparisons amongst K-8, 5-8, and 6-8 middle schools largely depicts better results for school types constructed with larger grade spans, most notably K-8 schools. Second, both structural school transitions and entrance into middle school are associated with lower levels of achievement than when students remain in K-8 schools or grade 6 in elementary schools. Furthermore, the large size of middle schools continues to be associated with lower achievement and middle schools in urban settings seem to be particularly impacted by deleterious socioeconomic factors.

In the case of middle years schooling, institutional path dependency indicates that policy and research debate invariably return to the best way to configure schools for early adolescents (Cuban, 1992; Mac Iver & Epstein, 1993). However, there have been periods of reform with subsequent recommendations for organizational restructuring that have

sought to reorient patterns of teaching and learning in middle schools (Carnegie Council on Adolescent Development, 1989). Many of these practices have placed an explicit focus on ameliorating the historical influence of departmentalization on the norms and beliefs about teaching and learning in junior high and middle schools.

Organizational Structure

Middle schools are often fed by the grade 5 enrollments of multiple elementary schools (Alspaugh, 1998). Therefore, students transition from smaller elementary cohorts to significantly larger grade 6 cohorts. Subsequently, departmentalization primarily makes organizational sense when both larger enrollment and commensurate staffing levels warrant its use (McPartland et al., 1987). Thus, the community orientation of heterogeneous self-contained classrooms taught by one teacher in elementary schools is replaced by a decidedly more loosely coupled bureaucratic approach to teaching and learning (Herriot & Firestone, 1983). As such, teachers' norms, beliefs, and patterns of teaching and learning adhere to fundamentally different formal structures in the middle school organizational environment.

The two primary organizational structures that have vied for institutional superiority since the advent of the middle school movement are interdisciplinary team teaching and departmentalization (Mac Iver & Epstein, 1993). First, the literature on the effects of departmentalization will be examined. In chapter three, the literature on interdisciplinary team teaching will be explored as a viable intervention for declines in engagement and relatively lower levels of student achievement that occur after the transition from elementary to middle school.

Departmentalization

An examination of diminished academic and psychosocial outcomes in middle schools reveals potential origins in the organizational structures, social dynamics, and cognitive experiences of adolescents in middle schools. Changes in these three domains seem to all converge in the organizational structure of academic departmentalization. However, empirical findings on the effects of departmentalization are relatively scant in the literature on middle school reform.

In many middle schools, subjects are apportioned into departments, which are tightly coupled with critical institutional features like scheduling, staffing, professional development, grading practices, approaches to teaching, and curriculum development (Meyer & Rowan, 2006). McPartland (1987) suggests that departmentalization “is intended to allow teachers to specialize in particular subjects, so they develop more expert knowledge and design fewer but higher quality daily lessons” (p. 10). Thus, departmentalization not only has implications for what subject matter students learn, but just as importantly how, when, where, and with whom they learn it.

Post-secondary teacher preparation, school district curriculum supervision, textbook and test production, and secondary teacher certification requirements are the institutional building blocks that sustain this formal structure (Meyer & Rowan, 2006). Inside schools, teachers’ perceptions of their roles as educators are intertwined with both internal and external views on the relative importance of their subject matter and how tightly coupled their content is to other institutional features like accountability measures and teaching practices (Grossman & Stodolsky, 1995; Meyer & Rowan, 2006).

While practices like departmentalization are geared toward providing students with increased content-specific instruction, some evidence suggests that learning tasks are less challenging than the class work students receive in grade 5 in elementary school (Eccles et al., 1991). This reduced cognitive demand combined with student perceptions that middle and junior high school teachers are less supportive and friendly suggests that both teachers and students are affected by the organizational structures and institutional norms and practices typical of secondary education (Eccles et al., 1991; Wang & Eccles, 2012). By and large, teacher efficacy and student psychosocial outcomes decline while many teachers and students seem to struggle to find common ground under the constraints imposed by the middle school environment (Eccles et al., 1991; Midgley et al., 1995).

The Effects of Departmentalization

Achievement outcomes and student perceptions related to the quality of instruction associated with departmentalized middle schools are decidedly mixed. Alspaugh and Harting (1998) indicate that students who transition to middle schools that employ interdisciplinary teaming academically outperform students in departmentalized schools in grade 6. However, McPartland (1987) indicates that students report significantly more positive perceptions of specialized instruction in mathematics, science, and social studies. Ultimately, the real trade-off in departmentalized middle schools exists in the decline that occurs in students' perceptions of the classroom environment in subject-specific classes (McPartland, 1987).

Comparing the association of departmentalization with student achievement in both elementary and middle schools, Becker (1987) finds that less departmentalization

and a limited number of teachers is positively associated with student achievement in both elementary and middle schools. In addition, less departmentalization appears to positively impact the achievement of students of low (SES) in middle schools while not harming students of high SES (Becker, 1987).

Becker (1987) utilizes a large sample of 330 schools and achievement data from the Pennsylvania Education Quality Assessment (EQA). Becker (1987) finds that 61% of students in schools containing grade 6 have three or more teachers, whereas 15% have only one teacher. Becker (1987) finds that “Both the ‘low’ and the ‘low-middle’ groups scored about 1/8 of a standard deviation lower in schools where sixth grade students had four teachers versus where than they had only one” (p. 18). While this portion of achievement loss is relatively small, it is nonetheless significant. Furthermore, the achievement decline for low SES students who have several teachers can be contrasted to Arhar and Kromery’s (1993) findings, which indicate that low SES students’ report stronger bonding with peers and teachers when they receive instruction from fewer teachers.

In addition, Becker (1987) suggests that the strong association between grade span and achievement largely mirrors the effects of organizational structures like departmentalization and across-class ability tracking that are prevalent in middle level schools. Becker (1987) concludes that “having each student instructed by a limited number of teachers—perhaps only one or two—appears to be a benefit or at least not be detrimental for learning in most subjects for most groups of students” (p. 30).

McPartland (1993) also finds that elementary schools employ more within-class grouping facilitated by a single teacher in self-contained settings (McPartland et al.,

1987). Thus it appears that self-contained elementary school teachers differentiate content and instructional methods to meet the heterogeneous needs of students. However, it also helps explain why across-class ability tracking is used more frequently in large, departmentalized environments. It is exceedingly difficult for middle school teachers to differentiate lessons in several different classes with myriad student needs.

Lee and Smith (1993) utilize a very large data sample of schools and students extracted from the National Education Longitudinal Study (NELS). Findings suggest that school restructuring produces modest gains in student engagement and achievement and that changes in practices like departmentalization are associated with a wider distribution of positive student achievement outcomes (Lee & Smith, 1993). Lee and Smith (1993) also indicate that school size is associated with increased subject specialization and describe, “the core of secondary education as including rationalized activities, uniform products, and formalized roles tied to a departmental division of labor” (p. 167).

A paradox exists in the manner in which elementary and middle schools are organizationally patterned. On the face of it, Lee and Smith’s (1993) description of secondary schools as rationally bureaucratic institutions owing to the way in which they are comprised of departments seems to make sense. However, a possible misnomer in this assessment is the assumption that the existence of more bureaucratic structures in secondary education connotes a rationally oriented approach to teaching and learning.

In one of the few studies to explicitly measure the rational orientation of different school types, Herriott and Firestone (1983) find that elementary schools are in fact the most rationally organized of the three school types they examine. The authors measure levels of goal consensus and the centralization of influence and find that elementary

schools are almost exclusively patterned in a manner that would be considered highly rational (Herriott & Firestone, 1983). Middle level schools reflected mixed levels of each attribute (Herriott & Firestone, 1983). High schools uniformly displayed low levels of consensus and centralization (Herriott & Firestone, 1983).

The fragmentation of consensus and centralization that begins in middle level schools potentially illustrates several points about the institutionalized nature of formal structures. First, increased subject specialization in conjunction with departments reduces the willingness or capacity of staff to agree on overarching organizational goals (Herriott & Firestone, 1983). Furthermore, departments and subject specialization distance principals from direct inspection of teaching and learning and decrease their centralized influence over many processes related to curriculum, instruction, and collaboration with teachers (Herriott & Firestone, 1983). Finally, the loose coupling apparent in middle level schools once again illustrates the goal ambiguity and mimetic processes that surrounded the evolution of middle years education (Cuban, 1992). Herriott and Firestone (1983) describe organizational loose coupling as a potential response to “environmental turbulence,” which certainly describes what many students and teachers experience in the middle school organizational environment (p. 11).

Middle school institutional dimensions like school size, bureaucratic control, and structures that support teacher specialization all seemingly point to an institutional environment that is less supportive and in some cases, impersonal, unsafe, and inefficient for adolescents. Furthermore, research findings suggest that the combination of fewer grade levels results in an overrepresentation of students experiencing dramatic pubertal change at the same time. To this end, departmentalization serves as an institutionalized

structure that legitimizes the division of knowledge and specialized personnel, while controlling the everyday school experiences of adolescents. In large part, departmentalization structures the work and socialization of teachers and student learning in many middle schools.

Research Questions

A comprehensive review of the literature on the decline in student engagement and comparatively lower levels of achievement after the transition from elementary to middle school reveals the mismatch between the institutional dimensions of middle schools and the needs of early adolescents. This study describes the differences in student effects produced by departmentalization (ATS) and semi self-contained learning communities (Project SUCCESS, e.g., Student Unified Curriculum Combining English, Science, and Social Studies). The following questions will potentially reveal the nature of what students experience after they transition from elementary to middle school.

1. Does spending approximately half of every school day with one teacher and an intact group of peers improve students' perceptions of the middle school environment?
2. Is there an increase in student engagement and achievement when students receive their core content instruction from one teacher?

Discussion and Conclusions

Examining the relationship between adolescent development and organizational approaches to teaching and learning reveals institutional impediments and potential paths to improving the elements of middle years schooling. Middle schools are a part of a broader institutional environment, which produces significantly different effects on

student's perceptions of the classroom environment and their engagement and achievement than elementary schools (Alspaugh & Harting, 1998; Eccles et al., 1991; Wang and Eccles, 2012). Departmentalization, a central organizing structure in the secondary school environment, seems to encompass many of the developmentally mismatched practices that inhere in the technical core of teaching and learning in middle schools (Becker, 1987; McPartland, 1987).

During the school restructuring movement of the 1990's, efforts were made to institute new approaches to middle level schooling (Carnegie Council on Adolescent Development, 1989; Lee & Smith, 1993). Practices like interdisciplinary team teaching took aim at the deleterious effects of departmentalization and across-class ability tracking (Carnegie Council on Adolescent Development, 1989). To some extent, interdisciplinary team teaching gained an organizational foothold as a viable alternative to departmentalized teaching and learning (McEwin & Greene, 2011). Furthermore, teaming has produced favorable outcomes for students and teachers (Alspaugh and Harting, 1998; Flowers, Mertens, & Mulhall, 1999). However, departmentalization continues to be used by many schools, including the two middle schools in this study. In addition, the differences between elementary and middle school achievement and engagement outcomes are as apparent in the context of this study as they are in the literature (Cook et al., 2008; Wang & Eccles, 2012).

CHAPTER 2

A MIDDLE SCHOOL NEEDS ASSESSMENT ON ENGAGEMENT AND ACHIEVEMENT

Problem of Practice

Evidence suggests that there are institutional forces that influence the quality of the technical core of teaching and learning in middle schools (Becker, 1987; Beachum et al., 2008; Eccles et al., 1991; Eccles et al., 1993; McPartland, 1987; Lee & Smith, 1993). Organizational structures like departmentalization are associated with control-oriented instruction, an emphasis on performance goals, and less affective support for early adolescents (Eccles et al., 1991; Midgley et al., 1995; McPartland, 1987). As a result, many students develop negative perceptions of the classroom environment, experience declines in school engagement, and show relatively lower achievement compared to other students who have not experienced the transition from elementary to middle school (Becker, 1987; Eccles et al., 1991; McPartland, 1987; Midgley et al., 1989; Ryan & Patrick, 2001; Lee & Smith, 1993). Thus, this assessment of need will focus squarely on the way in which elementary and middle schools classroom environments produce different student effects.

A Century of Struggle in Middle Years Schooling

A historical perspective on middle school effects reveals a complex interplay of societal and institutional factors that have produced eras of educational reform amidst long stretches of continuity in middle years schooling. The enduring question of how to best educate American adolescents is firmly situated at the nexus of disparate reform

efforts, changes in society, and fundamental questions about why institutions change or stay the same.

The ebb and flow of reform efforts in middle years schooling over the last century is indicative of educational institutions “whose most important constraint was not efficiency but rather legitimacy” (Meyer & Rowan, 2006, p. 5). While societal and institutional debate over the broader purposes of middle years schooling would arise in times of reform, much of this discourse in the 20th century would inevitably return to the best manner in which to configure schools for early adolescents (Cuban, 1992).

The middle school movement attempted to differentiate itself from the form and function of junior high schools (Cuban, 1992). New approaches to teacher collaboration, pedagogy, instructional scheduling, and developmentally appropriate grouping practices were a decided departure from traditional secondary school structures and practices (Carnegie Council on Adolescent Development, 1989; McEwin, 2001). Like many attempts at middle level reform, these efforts were pitted against the institutional orientation of reformers, policy makers, and secondary educators themselves (Cuban, 1992). Thus, secondary educators have continually appeared to struggle at implementing reform initiatives because their interests and perspectives are legitimized by the institutional norms and practices they purport to doubt.

A Well-Researched Problem

Research suggests that large, high-poverty, 6-8 middle schools produce unfavorable student outcomes relative to K-8 schools (Byrnes & Ruby, 2007; Rockoff & Lockwood, 2010). Rockoff & Lockwood (2010) find that math achievement falls by .177 standard deviations and achievement in English declines by .162 standard deviations after

students enter grade 6. By containing the fewest number of grades of any predominant school type, middle schools typically have large cohort sizes at each grade and an overrepresentation of students in a narrow band of psychosocial and physiological development (Lee & Smith, 1993; McPartland, 1987). As a result, formal structures like departmentalization sort and stratify students and arrange knowledge in an effort to impose order and conformity (Midgley et al., 1995; McPartland, 1987; Wang & Eccles, 2012).

Departmentalization, with fixed periods, content specialization, and significantly more students for teachers to get to know, potentially imposes constraints on the pedagogy of middle school teachers (Cuban, 1992; Rudolph et al., 2001; McPartland, 1987). Subsequently, teachers react to situationally constrained choice by providing instruction that matches the limitations imposed by this formal structure (Cuban, 1992). Thus, teachers seemingly resort to impersonal, whole group instruction that limits student autonomy, classroom interaction, and emphasizes performance goal orientations and comparisons. In turn, many early adolescents become progressively disengaged from school as their perceptions of the classroom environment, engagement, and achievement begin to flag (Beauchum et al., 2008; Midgley et al., 1989; Wang & Holcombe, 2010).

While interdisciplinary team teaching is a widely employed organizational structure for enhancing student-teacher relationships and stabilizing peer arrangements in middle schools, it is not utilized in the educational context of this study. In addition, the recent literature on middle school outcomes once again places school configuration at the center of policy and research debate (Cook et al., 2008; Rockoff & Lockwood, 2010). However, research also indicates that despite a policy and research preoccupation with

grade configuration, reform efforts like interdisciplinary teaming have altered the institutional orientation of middle schools toward the interests of adolescents and away from the norms, beliefs, and practices of secondary education (Alspaugh & Harting, 1998; McEwin & Greene, 2011). Thus, recent research on the relative merits of K-8 schools once again runs the risk of oversimplifying a complex problem that potentially originates in the manner in which teaching and learning occurs in middle schools.

Goals and Objectives

New institutional theory suggests that school types are chartered in dramatically different fashions (Meyer, 1977). To this end, it is apparent that students move between two very different organizational environments when they transition from elementary to middle school. Thus, the primary goal of this needs assessment was to examine differences in student achievement and engagement between elementary and middle schools in the professional context of this study.

Research Question

A comprehensive review of the literature on the pervasive decline in students' perceptions of the classroom environment and engagement and achievement after the transition from elementary to middle school reveals the mismatch between the organizational dimensions of middle schools and the needs of early adolescents. As such, this needs assessment posed the following question: In what ways do elementary and middle schools produce different engagement and achievement outcomes for students?

Methodology

Various data were collected and analyzed to determine if the needs reflected in the research literature on this pervasive institutional problem subsequently existed at both

the school system and local organizational level. As such, data on student engagement and achievement at both the elementary and middle school levels were analyzed to highlight the needs inherent in this problem of practice.

Needs Assessment Context

The two middle schools included in this study are large, diverse, and educationally impacted environments. The assessment of need in this study will focus on school 1. As seen in Table 1, nearly 70% of the population qualifies for free or reduced meals (FARMS). In addition, 80% of the school's enrollment are children of color and student performance reflects the gaps in achievement that exist in both the school system and in the nation.

Table 1

2013–2014 Middle School 1 Enrollment

% Racial/Ethnic Composition							
Races/Ethnicities	AM	AS	BL	HI	PI	WH	MU
All Students	≤ 5.0	10.1	36.9	43.3	≤ 5.0	7.7	≤ 5.0
ESOL	≤ 5.0	≤ 5.0	≤ 5.0	10.8	≤ 5.0	≤ 5.0	≤ 5.0
SPED	≤ 5.0	≤ 5.0	≤ 5.0	≤ 5.0	≤ 5.0	≤ 5.0	≤ 5.0

In the typical K-5 elementary schools that feed this middle school, educators have six years to foster students' academic and psychosocial development. This process occurs in community-based school settings where students generally have significantly fewer teachers during a school year than middle school students. For most elementary school students, achievement growth steadily occurs and student-teacher relationships are developed in self-contained classrooms where students typically have one to two primary

teachers. Table 2 reflects the upward achievement trajectory in grades 3 through 5 on the Maryland School Assessment (MSA) and the subsequent achievement decline that occurs beginning in grade 6. Thus, school 1 is representative of a larger institutional pattern of declining student outcomes that begins after the transition from elementary school.

Table 2

2014 Maryland School Assessment Performance Levels (Montgomery County)

Grades	3	4	5	6	7	8	All Grades
Math	73.1	80.4	74.4	76.2	74.8	69.1	74.6
Reading	79.8	89.4	92.1	87.1	85.9	84.4	86.5

Variables

As shown in Table 3, the variables in this needs assessment include two different school types and school engagement and achievement outcomes. Subsequently, publicly available MSA and Gallup data were utilized to delineate differences in engagement and achievement outcomes between elementary and middle schools in the local context of this study.

Table 3

Needs Assessment Methodology

Variables	Data	Instrumentation	Participants
Middle School 1 and elementary student achievement	Math: MSA, Reading: MSA	Achievement after elementary to middle school transition	Grade 7 students
Student Engagement	Gallup Student Poll	Compare engagement across the elementary to middle school transition	Middle School Grade 6-8 students Grade 5 students from eight feeder elementary schools

Methods

In order to analyze changes in achievement outcomes from elementary to middle school, we utilized MSA data in reading and mathematics of students in grade 6 in 2013–2014. To this end, we examined longitudinal MSA achievement outcomes of these students in grades 3–6. Our analysis of achievement includes one of the two middle schools (school 1) in our randomized control trial in this study. In addition, we used Gallup survey data for the same cohort of students when they were in grade 7 in 2014–2015. However, the analysis of Gallup data also includes grade 7 students in two additional middle schools that are in the same feeder pattern as school 1. Finally, we utilized Gallup data from eight feeder elementary schools to gauge changes in student engagement from elementary to middle school.

Achievement

Figure 1 illustrates that students in grade 6 in 2013–2014 had an uneven mathematics achievement trajectory in grades 3–5. While the number of students scoring basic on the MSA did increase in grade 5 in elementary school, the increase in basic scores after the transition to middle school is more significant. Moreover, Figure 1 indicates that the number of no scores in grade 3 is over twice the number three years later in grade 6. This is due in large part to the relatively high student mobility rates in the eight feeder elementary schools. Finally, a significant number of students who scored proficient or advanced in grade 3 scored in the basic range by the time they completed their first year of middle school in 2013–2014.

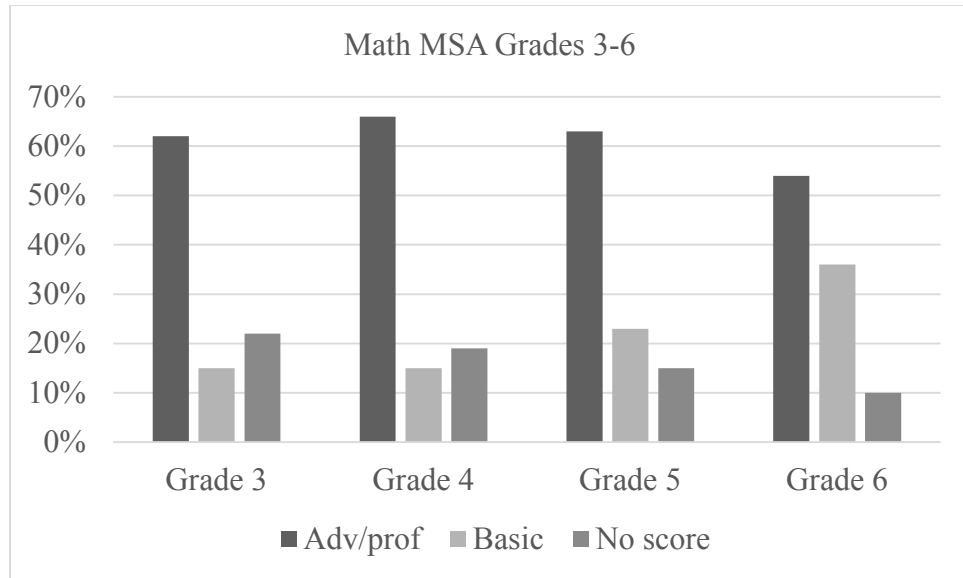


Figure 1. Elementary to middle school math scores for students in grade 7 in school 1.

MSA reading data in Figure 2 shows that students in grade 6 in 2013–2014 made steady progress in their attainment of reading skills after the first year they took the test in grade 3. By the time these students were finishing grade 5 and about to transition to middle school, only 10% of them scored in the basic range. However, the percentage of students scoring in the basic range increased by 6% by the conclusion of their first year in middle school. Once again, the number of no scores increased significantly between grade 3 and 6. Figure 2 shows that this cohort demonstrated their highest performance in reading in grade 5 and then began to decline in grade 6.

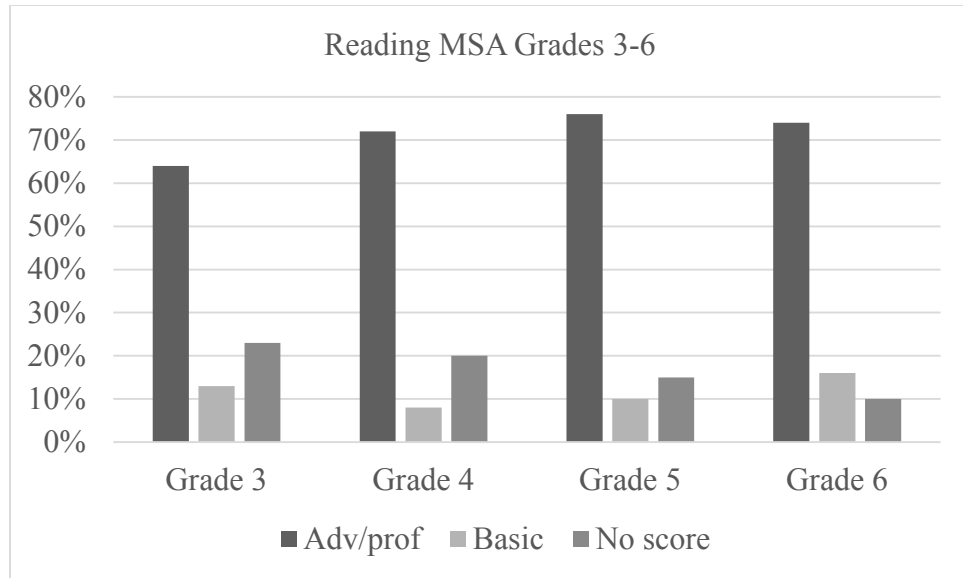


Figure 2. Elementary to middle school reading scores for students in grade 7 in school 1.

School Engagement

The Gallup Student Survey was administered to students in grade 5 through 8 each fall in the school system in this study. This survey measures students' perceptions on three psychosocial indicators: hope, well-being, and engagement.

To assess need in the area of engagement, we analyzed 2014 Gallup data from eight feeder elementary schools and three middle schools, including one of the two included in this study. Figure 3 shows the grand means for eight feeder elementary schools and Figure 4 shows the grand means for the three receiving middle schools, of which school 1 is one of the two middle schools included in this study.

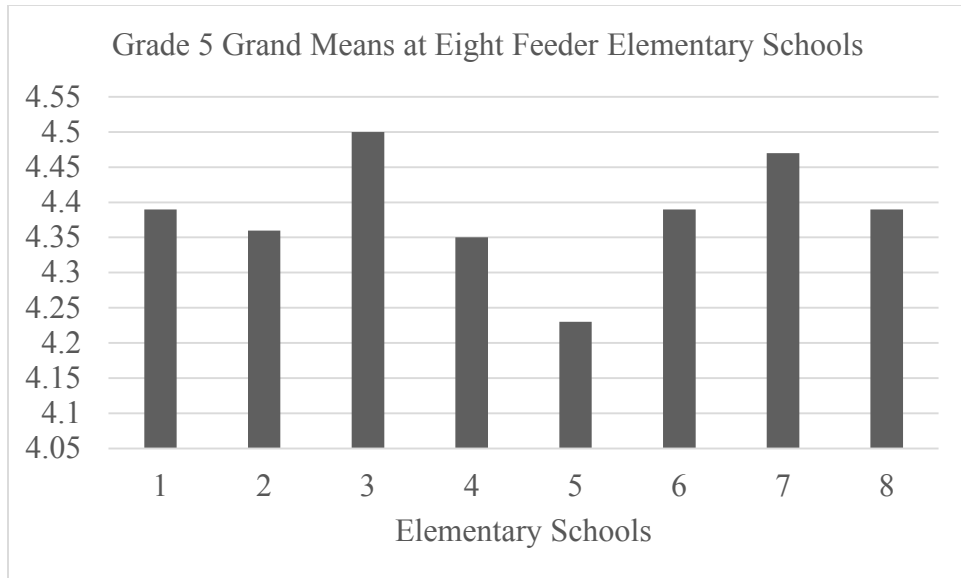


Figure 3. Gallup engagement scores of grade 5 students in eight feeder elementary schools.

Figure 3 illustrates that on a scale of 1 to 5, grade 5 students overwhelmingly indicate stronger perceptions of school engagement than grade 6 students do in Figure 4. Additionally, Figure 4 indicates that all but one of the feeder elementary schools (school 5) have higher grand means than all three receiving middle schools.

Much like the literature on the deterioration of engagement in grades 6 to 8, Figure 4 shows that students in all three local middle schools report that their engagement diminishes as they move toward high school (Balfanz et al., 2006; Wang & Eccles, 2012).

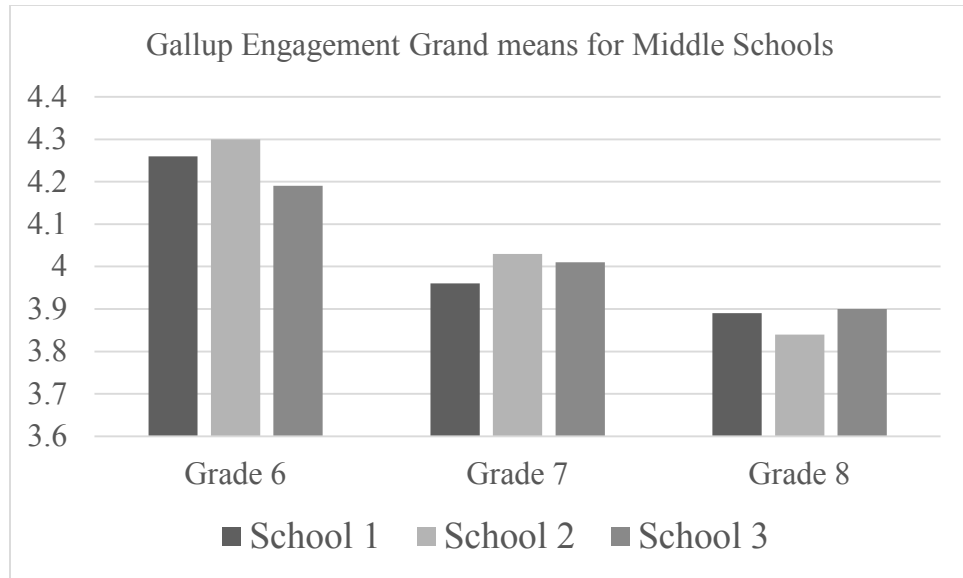


Figure 4. Gallup engagement scores of grade 6-8 students in three receiving middle schools.

Discussion

The needs assessment in this study focused on differences in engagement and achievement between elementary and middle schools. As such, analysis of the data indicated that declines in engagement and achievement exist at the local organizational level much like they do in the extensive literature on this problem.

After students transition from smaller elementary schools where they receive the majority of instruction in self-contained settings with fewer teachers, their achievement and engagement in school appears to deteriorate. While the elementary to middle school transition is a prominent factor in this decline, data in Figure 4 indicates that students become progressively disengaged during the course of their middle school experience. This trend suggests that discussion of these student effects should focus squarely on reform efforts that have attempted to address the factors that negatively impact students after they transition to middle school.

CHAPTER 3

AN INTERVENTION LITERATURE REVIEW

Policy and research discourse on how to address declining student engagement and disappointing achievement that occurs after the transition from elementary to middle school is frequently situated in arguments over the best way in which to configure the grade spans of schools to meet the needs of early adolescents. MacIver and Epstein (1993) refer to the historical handwringing over grade configuration as “The longest running debate in middle level educational research,” (p. 521). The history of this debate appears to suggest that institutional myths, norms, and beliefs about the work of middle level educators and the needs of early adolescents constrain the potential for change that grade reconfiguration aims to deliver (Cuban, 1992). However, evidence suggests that both the middle school environment and student outcomes can be improved when research-based practices are implemented with fidelity.

Successful reform efforts in high-poverty middle schools must include both fundamental organizational restructuring and a clear and consistent focus on high quality curriculum, instruction, and teacher professional development (MacIver, Balfanz, Ruby, Byrnes, Lorentz, & Jones, 2004). In that many middle schools are still comprised of organizational structures like departmentalization that mimic high schools, notable attempts to reorient the internal workings of these schools have largely focused on instituting organizational structures that reduce the impersonal bureaucratic social dimensions that lead to progressive student alienation (Lee & Smith, 1993). For example, structures like grade level looping and interdisciplinary team teaching are strategies that focus on improving the social webbing that connects peers, teachers, and parents in

smaller learning communities in large middle schools. However, the degree to which schools actually implement new formal structures is a longstanding question in the literature on middle school reform (Felner, Jackson, Kasak, Mulhall, Brand, & Flowers, 1997; McEwin & Greene, 2009).

Reviewing the research on the impact of several different comprehensive reform models provides context for a closer examination of the influence of individual elements of reform on teacher practice and student outcomes. As such, this literature review will explore the impact of secondary school scheduling, interdisciplinary team teaching, and looping on middle school improvement. Furthermore, we will describe recent reform initiatives like block scheduling that have been implemented over the last decade in one of the middle schools included in this study.

Our proposed intervention, Project SUCCESS, borrows several structural elements and conceptual underpinnings of the initiatives that are examined in this intervention literature review. As such, it is a significant departure from the secondary school myths, norms, and beliefs that influence to what extent middle schools can in fact be changed to meet the needs of early adolescents.

Calls for Change and Resulting Methods for Middle Years Reform

The analysis of the middle school reform movement typically provides a dichotomous view of improvement efforts (Anfara & Lipka, 2003). Subsequently, approaches to middle school research can loosely be categorized in the following manner: (a) examination of the impact of comprehensive implementation of interconnected reform components, and (b) the analysis of the impact of specific elements on teacher pedagogy and student outcomes (Anfara & Lipka, 2003). During the burgeoning standards-based

reform movement of the 1990's, increased political and societal awareness of student achievement resulted in heightened concern about the level of rigor and academic press inherent in the curriculum and pedagogy of the middle school model (Anfara & Lipka, 2003). Thus, it was no longer enough to transform junior high schools into middle schools by instituting practices like interdisciplinary team teaching and flexible scheduling. Instead, the impact of the comprehensive implementation of the middle school model on student achievement increasingly became the focus of research and policy discourse in the new millennium (Anfara & Lipka, 2003).

Strahan (2014) draws from the Association for Middle Level Education's (AMLE) series of publications titled *This We Believe* to posit that the middle school model includes the following components: (a) effective curriculum, instruction, and assessment, (b) interdisciplinary team teaching, (c) common planning time, and (d) organizational structures that support students' psychosocial development. As such, the two dimensions that are most associated with improved student outcomes in the literature are restructuring the organizational environment and a focus on curriculum and instruction. The collective impact of these elements on student outcomes is often evaluated in the literature by the relative level or duration of implementation (Strahan, 2014).

Felner, Jackson, Kasak, Mulhall, Brand, & Flowers (1997) conducted a large and influential longitudinal study on the effects of the implementation of recommendations from the Carnegie Council on Adolescent Development's publication *Turning Points* (1989). Felner et al. (1997) argue that calls for a shift from research on organizational restructuring towards an empirical focus on the state of curriculum and instruction in

middle schools fails to take into account the dearth of longitudinal studies that measure the impact of the implementation of recommendations from *Turning Points* on student outcomes. Subsequently, Felner et al. (1997) move beyond a dichotomous either/or proposition for the implementation of elements of the middle school model. Instead, the authors' seek to deconstruct recommendations like interdisciplinary teaming into various subcomponents in order to "provide the opportunity to answer the important questions about the degree of change and the interactions between changes that are necessary to obtain the desired results" (p. 5). Ultimately, the evaluation of Project SUCCESS in this study is analogous to Felner and colleagues (1997) examination of the impact of middle school restructuring on both pedagogy and student engagement and achievement.

Of the 31 schools included in the study, Felner et al. (1997) find that students in schools that implemented most of the structural changes with a high level of fidelity to the various subcomponents of each element achieved at much higher levels than non-implementation schools and "substantially" better than partially implemented schools (p. 9). Positive changes in teacher practice and school context were also apparent in schools where the scope and intensity of structural change was the greatest (Felner et al., 1997). This finding is instructive for this study largely because the theory of change inherent in the design of Project SUCCESS assumes that reducing the number of students that teachers have while increasing the amount of time they spend with one intact group of students daily will result in corresponding changes in pedagogy. Furthermore, the authors find a strong correlation between declines in teacher reported student behavior problems and student reported anxiety and depression in high implementation schools.

Ultimately, Felner et al. (1997) find that as schools progress through the three levels of The Carnegie Index of Middle School Transformation, “there appear to be associated gains in key areas of student behavior and socio/emotional adjustment” (p. 14). Thus, the findings of this expansive study suggest that a long-term commitment to implementing the full gamut of middle school model elements can result in improved teacher practice and student outcomes. Yet, at the start of the new millennium, the apotheosis the standards-based reform movement would be realized in the No Child Left Behind Act and commitment to the middle school model would begin to wane. A somewhat different approach to improving pedagogy and student achievement in high-poverty middle schools would help pave the way for a new era of middle school reform.

High quality curriculum, research-based instructional practices, and a strong focus on teacher professional development would increasingly serve as the levers for improving pedagogy and increasing student achievement in a new era of high stakes accountability (Balfanz & MacIver, 2000; MacIver et al., 2004). Initiatives like the Talent Development Middle School model (TDMS) developed at the Center for the Social Organization of Schools at Johns Hopkins University focuses on developing the knowledge and readiness of teachers to implement high quality standards-based curriculum using student-centered instructional strategies (MacIver et al., 2004). MacIver and colleagues (2004) draw on Carol Midgley’s research on teacher self-efficacy beliefs and the influence of classroom factors like mastery goal structures, classroom interaction, and student autonomy on student motivation. The analysis of Midgley’s research provides context for the inadequate teacher development, incoherent and unchallenging curriculum, and the churn

of teacher turnover that the authors' suggest plagues school reform in high-poverty middle schools.

Improving literacy and mathematics instruction and achievement are both “core components” in the comprehensive TDMS middle school reform framework (Balfanz, MacIver, & Byrnes, 2006, p. 36). Organizational renewal, improved teacher performance, and increased student outcomes are largely leveraged through a multi-year implementation of professional development on both content and pedagogy and the modification of formal school structures with the goal of improving the social dimensions of teaching and learning (Balfanz & MacIver, 2000; Balfanz et al., 2006; MacIver et al., 2004). Furthermore, TDMS largely draws reform inspiration from the notion that instead of revolutionary concepts, a set of reliable and proven tools are what is needed to renew high-poverty middle schools and produce significantly better achievement outcomes (Balfanz & MacIver, 2000). Balfanz and MacIver (2000) describe these tools as educational programs, which include “a coordinated and comprehensive set of student and teacher materials that provide students and teachers with the resources they need to engage in standards-based lessons everyday” (Balfanz & MacIver, 2000, p. 146).

Several studies on TDMS assess the level of fidelity and intensity that participating schools demonstrate in implementing the constellation of strategies in the TDMS framework (Balfanz & MacIver, 2000; Balfanz et al., 2006; MacIver et al., 2004). As such, Balfanz and MacIver (2000) indicate that contrary to conventional beliefs about the three to five years required to realize the rewards of school reform, several TD schools show significant achievement gains in the first year of implementation.

In their assessment of the impact of the TDMS reading and English language arts program, MacIver et al. (2004) find that TD schools' literacy growth is 1.3 standard deviations more than the growth of the comparison schools. Furthermore, schools that employ the TDMS literacy program demonstrate an increased capacity to diminish gaps in literacy achievement that are apparent by the end of fifth grade. MacIver et al. (2004) find that 54% of students in TD schools attain five normal curve equivalents (NCEs) versus 45% of students in comparison schools.

The effects of the TDMS model for mathematics are similarly encouraging. Despite factors like high teacher turnover, leadership changes, and inconsistent resource streams in the schools employing the TDMS mathematics program, substantial gains were realized across all levels of the student achievement hierarchy (Balfanz et al., 2006). The authors contextualize a moderate effect size of .24 across participating TD schools against significantly smaller effects described in related research on long-term mathematics reform initiatives (Balfanz et al., 2006).

That literacy growth and mathematics achievement in TD schools outpaces the progress of students in comparison schools suggests that a unified framework of standards-based curriculum, instruction, organizational restructuring, and professional development can serve as a protective shield against the decline in achievement associated with structural school transitions. Furthermore, these findings provide a compelling literature base for the theory of treatment and logic of Project SUCCESS. TD's focus on improving teacher self-efficacy through professional development on the use of instructional and curricular tools aligns with the development of a student-centered

classroom environment in Project SUCCESS that incorporates mastery learning, interaction, and teacher affective support.

Instructional Scheduling

One of the primary agents in the rise and fall of the modern junior high school was a ubiquitous instructional schedule that closely resembled the multi period arrangement of departmentalized high schools (Cuban, 1992). Bell times, class transitions, and different teachers for different subjects became the norm for junior high schools that generally utilized instructional schedules that often had six or seven periods (Cuban, 1992). Much like the goal ambiguity in the creation of junior high schools, the early adoption of middle schools was also rife with ambiguity (George, 2009). When it became increasingly apparent over time that the middle school movement had in fact relinquished many defining elements to the institutional isomorphism of secondary education, the clarion call for reform was heard once again (Cuban, 1992).

Two seminal reports in the 1980's served as bookends on a decade of increasing societal, political, and economic disenchantment with the state of secondary schools in the U.S. *A Nation at Risk* (1983) and *Turning Points* (1989) both questioned the manner in which secondary school days were structured to maximize time-on-task and student learning (Carnegie Council on Adolescent Development, 1989; Gullatt, 2006). Influential policy reports like *Turning Points* recommended replacing the mechanistic dimensions of secondary education by ensuring that “teacher teams should be able to change class schedules whenever, in their collective professional judgment, the need exists” (Carnegie Council on Adolescent Development, 1989, p.52)

Both *A Nation at Risk* (1983) and the National Education Commission on Time and Learning (1994) advocated that more of the school day be dedicated to learning and dominant secondary scheduling paradigms be shifted to both improve the quality of teaching and learning and provide expanded course options for secondary school students (Gullatt, 2006). To this end, a relatively widespread adoption of block scheduling techniques was in full bloom in secondary education in the 1990's. By the dawn of the new millennium, approximately 50% of U.S. high schools had experimented with some variation of schedules that featured longer classes with fewer daily periods (Gullatt, 2006).

In an effort to reclaim the developmentally responsive programming that animated the original middle school movement, *Turning Points* (1989) advocated for flexible scheduling as a core structural component of recommendations that also included interdisciplinary teaming and curriculum, advisory periods, engaging elective offerings, and extra-curricular activities (Carnegie Council on Adolescent Development, 1989; George, 2009). Thus, the classic six or seven period day of the departmentalized junior high school was increasingly perceived as a relic of a bygone era when "Through increased efficiency, depersonalization, and standardization, schools were to become the 'one best system' that would be more accessible to a larger number of students with diverse backgrounds" (Lee & Smith, 1993, p. 166).

Flexible Scheduling

Flexible scheduling became a mainstay among a cohesive set of recommendations that took aim at personalizing the social dynamics of secondary schools by establishing smaller learning communities led by semi-autonomous teacher teams within larger

educational settings (Gullatt, 2006; Jackson & Davis, 2000; Lee & Smith, 1993). In their analysis of the Survey of Randomly Selected Middle Schools, McEwin and Greene (2011) discuss the broad implementation of several of these longstanding recommendations for middle school reform. The Survey of Randomly Selected Middle Schools provides the most recent data in a series of “linked studies” that was first administered in 1968 (McEwin and Greene, 2011, p. 7).

McEwin and Greene (2011) find that flexible scheduling has experienced a significant decline in use since its apex in 1993. By 2009, 14% of respondents in the study indicated that they used flexible scheduling, a decrease of over half since 1993. While the number of respondents using daily fixed periods declined slightly from 2001 to 2009, 72% of schools still utilize schedules that seemingly rely on fixed periods and bell times. Furthermore, survey data that shows the amount of daily time dedicated to middle school “core subjects,” (e.g., mathematics, language arts, science, social studies) signifies a pervasive coupling of fixed periods with core content (McEwin and Greene, 2011, p. 12).

However, there are examples in the literature where flexible scheduling is used to structure the school day for early adolescents. Ellerbrock and Kiefer (2013) qualitatively examine how the social dynamics created by various secondary school structures influence the perceptions of students, teachers, and the principals of both the middle and high school included in the authors’ multi-site case study. The participating middle school has an enrollment of over 1,500 students with 480 eighth grade students divided into four teams (Ellerbrock & Kiefer, 2013). Over half of the student enrollment qualifies

for free or reduced meals and approximately 60% of the school's enrollment are minority students.

Eighth grade students have a 160-minute block colloquially referred to as the "homeroom team" (Ellerbrock & Kiefer, 2013). Two groups of 26 students remain with their homeroom team for the duration of this morning session and the 131-minute afternoon block is dedicated to English and mathematics. Teachers on the team flexibly fold science, social studies, and a homeroom session into this extended block and students' transition from one period to the next with an intact peer arrangement (Ellerbrock & Kiefer, 2013).

The authors' find that students strongly value an extended amount of time with an intact peer arrangement (Ellerbrock & Kiefer, 2013). Students' report that this extended block allows teachers and students to get to know each other well and the intact peer arrangement within each homeroom team fosters a strong "peer network" (Ellerbrock & Kiefer, 2013, p. 182). Furthermore, the principal of the middle school in the study reports that this flexibly structured dimension of the school day places a premium on the social dimensions of teaching and learning and allows teachers to build relationships with students during a developmental period when relationships with non-parental adults are critical (Ellerbrock & Kiefer, 2013; Lee, Smith, Perry, & Smylie, 1999).

In addition, the flexible block schedule allows teachers to combine common team planning time with their lunch period resulting in an extended time to meet as a team. Teachers' utilized this time to plan team activities, examine students' needs, and build professional relationships with one another (Ellerbrock & Kiefer, 2013). Finally, one teacher in particular perceived that not only was this extended planning time beneficial to

their work as a team, but it also reinforced to the students that the teachers shared responsibility for knowing and supporting them (Ellerbrock & Kiefer, 2013).

While Ellerbrock and Kiefer (2013) explicitly explore the social implications of flexible scheduling and interdisciplinary teaming, research and discourse on middle school reform have likewise attempted to establish links between the flexible use of time and instructional practices that produce improved student outcomes. Departmentalized fixed period schedules have traditionally been structured to ensure “the routinization of procedures, and the management of technical complexity involved in getting the major work accomplished—instructing students” (Lee & Smith, 1993, p. 166). As such, each subject is allotted the same amount of time regardless of its impact on students’ cognitive and psychosocial development. Hackman and Valentine (1988) refer to this as giving “equal time to unequal subjects” (p. 4).

Hackman and Valentine (1998) also assert that unbinding teachers from the constrained choice produced by departmentalization and bell-to-bell teaching is possible with interdisciplinary team teaching and flexible scheduling. Ultimately, the “greater the degree of flexibility for team members in the implementation of the schedule,” the more teachers will try new instructional strategies and align their collaboration and pedagogy toward the developmental needs of early adolescents versus the coverage of curriculum content (Hackman & Valentine, 1998, p. 5).

Incorporating flexible elements into a middle school schedule also requires a fundamental redistribution of authority and autonomy in school-based organizational management. Lee and Smith (1993) lament, “Authority operating through centralized and dominative (rather than decentralized and collegial) mechanisms further emphasizes

mechanistic control in schools” (p. 167). Conversely, Hackman and Valentine (1998) find that flexible scheduling, teacher autonomy, and the opportunity for teachers to construct their own teams are positively associated with students’ middle school experience. Thus, empowering teams of teachers to flexibly use time based on their proximity to the demands inherent in teaching and learning appears to be a more organic method of scheduling than a bureaucratic model that places a premium on a departmental division of labor and centrally developed fixed schedules.

Finally, the catch-22 inherent in middle school reform recommendations appears to involve the need to provide early adolescents with engaging electives while still providing core subject teachers the latitude to flex their use of time based on the demands of specific lessons, projects, or student readiness levels (Hackman & Valentine, 1998; McEwin & Greene, 2011). Therefore, notwithstanding the constraints that traditional fixed period schedules impose on the flexible and creative use of time, six, seven, and various block schedules have nonetheless served as legitimate systems for delivering both core content and elective courses.

The Effects of Block Scheduling

Is it just too challenging to expect middle schools confronted with the demands of delivering both rigorous subject matter and elective courses to incorporate flexible scheduling into the school day? The answer to this question can once again be found in the block scheduling movement that swept through high schools in the 1990’s. As 4 x 4 and eight-block alternating-day schedules became increasingly common in high schools across the country, middle schools eventually started to incorporate blocks as a

compromise to the extremes of flexible scheduling and traditional six and seven period schedules (Hackman, 2002).

Block schedules are largely viewed as a means to fundamentally change the way in which secondary teachers deliver instruction. Traditional six and seven period schedules have been associated with “student activity marked by passivity—written work, listening, and preparing for assignments” (Gullatt, 2006, p. 253; Mac Iver & Epstein, 1993). Thus, a prevailing assumption about block scheduling is that fewer daily classes that are longer would allow teachers to both personalize and diversify the instructional delivery of content (Gullatt, 2006). However, much like the competing priorities in offering diversified middle school offerings, both 4 x 4 and eight-block alternating-day schedules require the delivery of the same amount of curriculum content in fewer fixed periods. As a result, 4 x 4 block schedules that distill a school year’s worth of content into a semester have largely been viewed as developmentally inappropriate for early adolescents (Hackman, 2002).

Gullatt (2006) suggests that the effects of block scheduling on pedagogy are decidedly mixed. While students in block schedules indicate that they engage in small group work more frequently than students in traditional schedules, teacher centered lectures are still perceived by students as the predominant method of instruction (Gullatt, 2006). In addition, Freeman (2001) finds that control oriented instruction signified by lecture and individual seatwork is the most frequently employed instructional strategy in block schedules. However, instructional observations and student reporting also both indicate that teachers provide students more opportunities to engage in whole-class discussions while “thinking hard about ideas” (Freeman, 2001, p. 25). Finally, Mattox,

Hancock, and Queen (2005) suggest that teachers indicate that they are more willing to try different teaching strategies as a result of longer class periods.

There appears to be a paucity of quantitative studies that examine differences in student effects produced by both traditional and block schedules in middle schools. Much of this research has occurred at the high school level. Furthermore, the mixed nature of findings on the influence of block scheduling on instruction appears to reflect the mixed findings on student outcomes (Gullatt, 2006). Mattox et al. (2005) find that both 4 x 4 and eight-block alternating-day schedules have statistically significant effects on the mathematics achievement of grade 6 students. While Trenta and Newman (2002) stop short of delineating a causal relationship between block scheduling and achievement in a four-year longitudinal study, they nonetheless conclude that the implementation of the block aligned with a significantly positive trend in achievement across the four core subjects. Finally, in a mixed methods study on a largely poor high school in California, Boaler and Staples (2008) contend that 4 x 4 block scheduling is an integral method to facilitate students' acceleration into higher level mathematics courses like calculus.

Zepeda and Mayers (2006) meta-analysis of block scheduling research exemplifies the contradictory outcomes and research findings associated with the practice. In addition, Zepeda and Mayers (2006) synthesis underscores the nature of educational rhetoric that overburdens block scheduling with the weight of expectations for fast acting reform. For example, Zepeda and Mayers (2006) find that most empirical examinations of student learning indicate that students earn higher grade point averages in block schedules. Conversely, their analysis shows that the literature on the effects of block scheduling on standardized test scores is highly inconsistent (Zepeda & Mayers,

2006). Thus, block scheduling is a potentially viable intervention to improve grades but does not ensure improved student performance in the current climate of high stakes standardized testing accountability (Zepeda & Mayers, 2006).

Interdisciplinary Team Teaching

Mimetic and normative forces sustain the formal structures, rituals, and beliefs inherent in the middle school organizational environment (Cuban, 1992). However, innovation does occur at the margins of the middle school organizational field. Ultimately these ideas seem to inconsistently result in the kinds of systemic change that release teachers from the constraints that Cuban (1992) suggests shapes their beliefs and practices in secondary education. However, interdisciplinary team teaching has possibly been the most significant reform effort to take aim at the myths, rituals, and societal expectations that legitimize secondary school formal structures like departmentalization.

The Evolution of Interdisciplinary Team Teaching

Interdisciplinary team teaching, a hallmark of the middle school movement that began in the 1960's, illustrates the structural integrity and institutional influence of departmentalization (Carnegie Council on Adolescent Development, 1989; Eccles et al., 1993). Flexibly structuring time for teachers of different subjects to plan and implement interdisciplinary instruction and mutually account for the psychosocial success of students became known as teaming. It was widely considered a reform initiative that could alter the organizing principles of the technical core of teaching and learning in middle schools. While teaming gained a significant foothold across many U.S. school districts in the 1990's, policy and research debates ensued about the relative merits of

each structure and how and to what extent they could coexist as complementary structures (MacIver, 1990).

Although interdisciplinary team teaching existed as a hallmark of the middle school movement from its inception in the 1960's, its inclusion in *Turning Points* (1989) seemingly cemented its status as an alternative to departmentalization for organizing staff and students for teaching and learning (Wallace, 2007). *Turning Points* (1989) served as a compelling call for reorienting middle level formal structures away from the bureaucratic organizational designs and influence of high schools (Lee & Smith, 1993). However, at the tipping point in the transformation of junior high schools into middle schools in the late 1980's, researchers at Johns Hopkins Center for Research on Elementary and Middle Schools found that of 2400 middle years schools, most still segmented the school day into six periods of departmentalized classes (Cuban, 1992). Furthermore, interdisciplinary teaming was not utilized by about 60 percent of schools in the study (Cuban, 1992).

Teaming offers a hybridized structural approach that essentially incorporates the student-centered sensibilities of elementary education including flexible scheduling and smaller teams of teachers who are responsible for a smaller number of students (Mac Iver, 1990; Wallace, 2007). Ideally, interdisciplinary teaming consists of common planning time for teachers to integrate curriculum and invest shared time in provisioning for students' psychosocial and academic success (Wallace, 2007).

However, interdisciplinary teaming also exists in different forms. It is relatively common to find four-teacher teams responsible for up to 125 students where teachers typically maintain their subject-specific teaching roles and students switch classes with

the same students for subject-specific instruction (Wallace, 2007). This arrangement essentially overlays a departmentalized teaching structure on the cross-curricular collaboration of four subject-specific teachers responsible for an intact arrangement of students (Wallace, 2007). Wallace (2007) suggests that two-teacher teams where subjects like math and science are integrated and taught by a single teacher are more aligned with the spirit of interdisciplinary team teaching. Furthermore, two-teacher teams maximize students' emotional engagement in the manner in which they can develop stronger bonds with fewer teachers (Wallace, 2007).

Interdisciplinary team teaching is intended to lessen the constraints imposed on both teachers and students by bureaucratic formal structure. Teaming reduces the need for formalized bell schedules while it creates smaller learning communities within large grade level cohorts (Arhar & Kromrey, 1993). The mechanistic segmentation of the school day characterized by students switching classes for different subjects with different peers is thus replaced by personalized team structures where students bond with fewer students and teachers (Wallace, 2007).

Finally, two-teacher interdisciplinary team teaching is commonly employed in grade 6 as a structure to ease the transition from the self-contained classrooms commonly found in elementary schools to the departmentalized or four or more-teacher teams used in grade 7 and 8 (Wallace, 2007). In this approach teachers are typically required to be oriented as generalists, which aligns with grade 6 teachers often possessing elementary certification versus the specialized credentialing of secondary school teachers (Wallace, 2007).

Several studies have measured the impact of interdisciplinary team teaching on student achievement and psychosocial outcomes (Alspaugh & Harting, 1998; Flowers et al., 1999; Wallace, 2007). In a limited number of studies, differences in outcomes between departmentalized and interdisciplinary structures have been examined. Regardless of this paucity of research comparing the effects of these two middle level organizational structures, interdisciplinary teaming remains the only viable alternative to the institutional hegemony of departmentalization.

The Effects of Interdisciplinary Team Teaching

Alspaugh and Harting (1998) investigate two different patterns for organizing students and teachers for instruction. The impact of structural teaching arrangements on student outcomes in this study builds on the Alspaugh's (1998) previous examination of the loss of achievement that occurs when students transition from largely self-contained elementary classroom settings to departmentalized middle schools. In this study, departmentalization is compared to interdisciplinary team teaching, an initiative commonly recommended in literature on middle school reform (Carnegie Council on Adolescent Development, 1989).

The authors compare student achievement outcomes between the two structures and a cluster of K-8 schools comprised of self-contained classrooms in the middle grades serves as a control group. The study utilizes mean school achievement scores in reading, mathematics, science, and social studies as dependent variables. Alspaugh and Harting (1998) indicate that interdisciplinary team teaching mediates achievement loss in the grade 6-transition year to middle school. In addition, students who transition to schools employing teaming outperform students who enter departmentalized middle schools.

However, statistically significant differences in mean outcomes between the three organizational patterns failed to exist during grades 7 and 8.

Research on middle school outcomes indicates that academically and psychosocially at-risk students are disproportionately impacted by the transition from elementary to middle school (Bedard & Do, 2005; Rockoff & Lockwood, 2010; Ryan & Patrick, 2001). Arhar and Kromrey (1993) find that interdisciplinary teaming employed in middle schools impacted by low socioeconomic status (SES) increases students' bonding to both teachers and peers. Aligned with this finding is McPartland's (1990) contention that low SES students had mixed academic success in highly departmentalized schools compared to high SES students. Furthermore, McPartland (1990) finds that the use of teaming to complement departmentalization enhanced student-teacher relationships without diminishing the positive effects of departmentalization on high SES students.

Wallace (2007) explicitly explores different effects produced by two and four-teacher interdisciplinary team configurations. In a relatively small sample of 10 schools divided evenly into two groups, the cluster of five schools that employed two-teacher teams outscored the schools utilizing four-teacher teams on measures of peer, teacher, and school bonding (Wallace, 2007). Furthermore, Ellerbrock and Kiefer (2013) find that both grade 8 students and teachers place a high value on the stable peer and student-teacher relationships produced by teaming and flexible scheduling. This study complements Wallace's (2007) findings underscoring the positive impact of teaming on dimensions of engagement including an increased sense of connectedness between students and teachers.

On a national scale, interdisciplinary team teaching is recognized as a reliable formal structure for school improvement. In analyzing results from two related surveys, the random middle school survey and the highly successful middle school (HSMS), McEwin and Greene (2011) find that 90% of HSMS employ interdisciplinary teaming versus 72% of schools in the random middle school survey. In addition, common planning time (CPT) appears to be a critical structural component of teaming in HSMS. Ninety-percent of these highly recognized schools incorporated at least five periods of CPT per week and 40% of HSMS allocated the recommended 10 blocks of CPT per week (McEwin & Greene, 2011).

In a large-scale examination of teaming, Flowers et al. (1999) find that middle schools that incorporate teaming with high levels of CPT in the Michigan Middle Start Self-Study demonstrate the greatest two-year student achievement gains. Furthermore, middle schools that employed teaming for five or more years had the highest standardized test scores of schools participating in the study (Flowers et al., 1999). Furthermore, Warren and Payne (1997) find that teachers on interdisciplinary teams with no CPT report higher levels of professional satisfaction than teachers organized departmentally. Warren and Payne (1997) also suggest that interdisciplinary team structures that incorporate CPT result in increases in teachers' personal teaching efficacy. Ultimately, Flowers et al. (1999) contend that schools that incorporate interdisciplinary teaming for the greatest length of time see the job satisfaction of teachers steadily increase.

Research suggests that interdisciplinary teaming has positive effects on student achievement (Alspaugh & Harting, 1998), engagement (Arhar & Kromery, 1993), and

the personal efficacy and job satisfaction of teachers (Warren & Payne, 1997). Furthermore, data from a national survey on high-performing middle schools indicates that the large majority of these schools incorporate teaming and CPT as structural elements of their programs (McEwin & Greene, 2011). While research comparing the outcomes associated with teaming and departmentalization continues to be somewhat scant, some evidence suggests interdisciplinary teaming does more to support the engagement and achievement of vulnerable students than departmentalization (Alspaugh & Harting, 1998; Arhar & Kromery, 1993; McPartland, 1990).

Researchers suggest that the choices inherent in institutionalizing formal structures like departmentalization and interdisciplinary team teaching are seemingly comprised of trade-offs and competing priorities (Becker, 1987; McPartland, 1987). The acquisition of domain-specific knowledge is critical to the development of early adolescents and it requires specialized teachers who are well educated in the facts, generalizations, and thinking skills that inhere in different subjects (Bandura, 1989). Balancing these academic priorities with the psychosocial needs of early adolescents raises questions about whether one organizational structure can maximize both the influence of teachers and the psychosocial development and learning of students. Ultimately, incorporating several different organizational structures that complement one another could potentially ameliorate the specific drawbacks of any one particular structure.

Grade Level Looping

Looping is an arrangement where a teacher transitions from one grade level to the next with the same group of students (Gaustad, 1998). As somewhat of a niche

organizational practice that has a long history of use in both the United States and internationally, looping rarely appears as a centerpiece in comprehensive middle school reform recommendations. In their analysis of data from the Schools and Staffing Survey (SASS), Juvonen, Le, Kaganoff, Augustine, & Constant (2004) report that only 17% of teachers report that their schools utilize looping as an organizational practice. As such, it typically appears in the literature on middle school reform as a grouping and transition arrangement that complements organizational structures like interdisciplinary team teaching (Gaustad, 1998; Juvonen et al., 2004). Because looping is a multi-year proposition, it sometimes appears in the literature as an organizational arrangement that is part of an improvement framework that will be implemented over the course of several years (Balfanz et al., 2006).

Looping seemingly has the potential to improve the social dimensions of classroom instruction (Gaustad, 1998). Balfanz et al. (2006) examine the impact of looping as part of the implementation of the TDMS mathematics program in high-poverty middle schools. Looping is implemented as an element of a set of restructuring principles including the implementation of smaller learning communities and semi departmentalization. Balfanz et al. (2006) find that students' report stronger perceptions of pedagogical caring and that looping contributes to increased academic press and instructional risk-taking from teachers. Furthermore, the author's report that longitudinal regression analyses reveals that students in looping arrangements in TD schools experience more student-centered instructional strategies like cooperative learning than students in comparison middle schools (Balfanz et al., 2006).

While looping is a relatively straightforward and cost neutral practice, it nonetheless requires teachers to switch grades in consecutive years and possess mastery of multi-grade level content in one subject. In a qualitative study utilizing focus groups and interviews, Smith (2010) finds that after two years of implementation, middle school teachers report increased confidence and command of the two-year curriculum cycle. Furthermore, the social studies teachers in the study appreciated that looping provided them with the opportunity to prepare students for standardized assessments that measured students' knowledge and skills over the two-year cycle (Smith, 2010).

Teachers report that looping enhanced their ability to effectively pace the curriculum and provided the autonomy to match pacing to the needs of their students (Smith, 2010). Subsequently, teachers have the autonomy to relinquish coverage of specific concepts in grade 7 knowing they can account for this content in the following year (Smith, 2010). The autonomy to make curriculum and instructional decisions in the context of a two-year looping arrangement is analogous to the increased time Project SUCCESS teachers have with one intact group of students over one year. Like Smith's (2010) reporting that teachers felt increased intimacy with both the curriculum and students, the assumption of this study is that Project SUCCESS teachers will be more oriented toward the development of mastery goals and student centered instruction.

Finally, there continues to be a paucity of empirical research on the impact of looping on student achievement. Barger (2013) utilizes surveys of middle school principals in Pennsylvania to assess which middle schools had eighth grade students who had experienced looping in science in 2010. Interestingly, Barger (2010) finds that most of the schools that responded to the survey utilize looping as a default teacher assignment

method versus a specific reform practice. Using a t test for analysis, the author finds that looping in middle school science does not contribute to student achievement on the Pennsylvania System of School Assessment (PSSA) (Barger, 2013).

Conversely, Tucker (2006) uses an unpaired t test and finds significantly higher achievement on the Colorado State Assessment Program (CSAP) for students in looped treatment groups in reading, writing, and mathematics than students in the comparison group within the same middle school. Moreover, Burke (1997) indicates that students in looping arrangements in the Families Are Students and Teachers (F.A.S.T.) program in East Cleveland, Ohio achieved at substantially higher levels in reading and mathematics than students in comparison arrangements.

In summary, the research on looping suggests that it strengthens the social dimensions of classroom instruction and in some cases, positively impacts student achievement in middle schools (Balfanz et al., 2006; Burke, 1997). While some studies suggest that looping can exacerbate difficult relationships between school staff and students and parents, the literature overwhelmingly portrays it as a structure that improves teacher self-efficacy, diversifies instructional practice, and strengthens student-teacher relationships (Balfanz, 2006; Gaustad, 1998; Smith, 2010). Subsequently, the power of looping appears to be derived from several of the same change variables incorporated into the design and implementation of Project SUCCESS, namely an increase in time that students spend with one teacher, one intact peer group, and increased teacher autonomy for the implementation of curriculum and instruction.

Semi Self-Contained Learning Communities in Grade 6: Project SUCCESS

Semi self-contained learning communities are similar to interdisciplinary teams. Both organizational structures include integrated curriculum, flexible scheduling, and intact peer arrangements. However, notable exceptions do exist. Semi self-contained learning communities do not include an advisory period. Furthermore, one teacher delivers science, social studies, digital literacy, and English in a semi self-contained setting. Research suggests that grade 6 students in interdisciplinary team structures demonstrate higher achievement than students in departmentalized middle schools (Alspaugh & Harting, 1998). Therefore, grade 6 is a critical year to nurture students' relationships with teachers in order to build their engagement and achievement in a new organizational environment.

Semi Self-Contained Structure

Project SUCCESS is a grade 6 organizational structure in which students receive interdisciplinary instruction in four primary content areas from one teacher (Culyer, 1984). These learning communities are comprised of two to four semi self-contained Project SUCCESS classes where teachers have common time to plan interdisciplinary instruction.

The manner in which the school day is scheduled for Project SUCCESS differs significantly from typical eight-block alternating-day or seven period schedules. Students in both schools spent approximately 180 minutes with the same teacher and peer group daily. Extended blocks in Project SUCCESS provide both the time and classroom environment for the following to occur: (a) students receive instruction in four core curricula delivered by one teacher in a self-contained setting for half of the school day

(e.g., up to 180 minutes), (b) students have two fewer class transitions daily, (c) teachers would have common planning time for a minimum of twice a week, and (d) Project SUCCESS planning would include interdisciplinary content organization.

Project SUCCESS Social Dimensions

In addition to altering the fundamental structure of the school day, the design and implementation of Project SUCCESS reorients the social dimensions of teaching, learning, and relationships in grade 6. We assumed that this fundamental change in classroom context would interact with students' behavior and cognition to improve their perception of the school environment, and increase their engagement and achievement (Wang & Holcombe, 2010). Furthermore, we assumed that restructuring the amount of time teachers have to implement curricula and interact with an intact group of grade 6 students would fundamentally change the goal orientations of their classrooms, the way in which they build relationships with students, and how they teach (Ellerbrock & Kiefer, 2013; Wallace, 2007).

Project SUCCESS requires the social dimensions of teaching, learning, and grouping be fundamentally reoriented toward a more organic and communal ethos including: (a) students grouped heterogeneously in semi self-contained classes, (b) teachers emphasize a mastery goal orientation, (c) teachers facilitate mutually supportive classrooms by modeling affective support and, (d) teachers provide varied opportunities for small group learning and student autonomy (Oakes, Quartz, Gong, Guiton, & Lipton, 1993). Thus, the implementation of Project SUCCESS ultimately transforms the way in which both teachers and students think and feel about middle school by establishing a

stable and intact learning community within a historically stratified and bureaucratic institution.

CHAPTER 4

METHODS AND PROCEDURES

Reorganizing the internal structures that shape teaching and learning in middle schools is a viable alternative to full-scale grade reconfiguration. Moreover, research suggests that the development of smaller learning communities that borrow essential elements of interdisciplinary team teaching, flexible scheduling, and looping can offset the negative student effects associated with school transitions and large, departmentalized middle schools.

Project SUCCESS provides students the opportunity to receive instruction from fewer teachers with a stable classroom peer arrangement. Furthermore, small teams of teachers have the flexibility to build stronger relationships with early adolescents while they have time to develop interdisciplinary curriculum and instructional methods that improve students' perceptions of the school environment and foster student engagement and achievement.

Research Design

Process Evaluation

Both middle schools made a significant commitment to this study by instituting a major change in formal structure in grade 6. This change naturally held implications for how it would be perceived by school staff, parents, and students. In addition, random assignment of students to grade 6 courses is an atypical organizational strategy that required both schools and the researcher to place a premium on clearly communicating how the study would be implemented and the outcomes that were being assessed. Finally,

this intervention lasted a full school year, which required all the stakeholders to make a long-term commitment to a new schooling experience.

We used two guiding tenets suggested by Rossi, Lipsey, and Freeman (2004) in order to evaluate the process by which Project SUCCESS was implemented. That is, we sought to ensure that Project SUCCESS was delivered to the target population in the study and that the program was implemented with fidelity. The following question was used to guide the evaluation of the implementation of Project SUCCESS: Are sixth grade students in Project SUCCESS spending 180 minutes each school day with one intact peer group and one teacher for instruction in English, digital literacy, science, and social studies for a full school year? Thus, implementing Project SUCCESS with high fidelity depended on restructuring a school's master schedule to provide 180-minutes daily in which students received instruction in four different subjects from one teacher.

The logic model in Appendix B illustrates how two semi self-contained classroom environments structured for 180 minutes of daily instruction were assumed to positively influence students' perceptions of the classroom environment by providing more time to bond with peers, teachers, and school (Wallace, 2007). Subsequently, ensuring high fidelity to the modified schedule required students to remain with their Project SUCCESS cohort and teacher for the daily dosage of 180 minutes for the entirety of the school year. Conversely, low fidelity would have been caused by competing scheduling priorities like a school wide advisory period or specific academic interventions that eroded the integrity of the 180 minutes spent daily in Project SUCCESS. Furthermore, parents withdrawing their children from Project SUCCESS in order to have them in the ATS schedule in the

same school would also have reduced fidelity to the schedule that provided the structure for the semi self-contained classroom environment.

Outcome Evaluation

This study used an experimental design with a randomized control trial at two middle schools to assess the impact of semi self-contained learning communities on students' engagement, achievement, and perceptions of the classroom environment. Our underlying logic in this study held that a significant change in organizational structure would change pedagogy resulting in increased engagement, achievement, and stronger perceptions of the classroom environment. Thus, Project SUCCESS served as the treatment group and the departmentalized, achievement through specialization (ATS) group served as the business-as-usual control condition.

The theory of treatment (appendix B) for this study is a causation model (Leviton & Lipsey, 2007). The hypothesis for this experimental investigation was that spending half of each school day with one teacher and one intact peer group would result in achievement growth in sixth grade. As such, the independent variable (semi self-contained instruction-Project SUCCESS) would influence the dependent variable (student achievement) through causal processes related to intervening variables including students' perceptions of the classroom environment and their engagement (Leviton & Lipsey, 2007).

The initial effects of Project SUCCESS were derived from having students spend half of each instructional day (180 minutes) with one teacher and peer group. Conversely, the control groups had either seven or eight different teachers and peer groups in a seven period or alternating day 90-minute block schedule respectively. Appendix B illustrates

how this increase in time spent with one teacher and peer group interacted with the moderating variable, the classroom environment, to produce stronger student perceptions of mastery learning, peers, autonomy, and support from their teachers (Wang & Holcombe, 2010). Further, it was assumed that stronger perceptions of the classroom environment would positively impact student engagement, which would in turn mediate achievement (Wang & Holcombe, 2010).

Random assignment makes it possible to draw causal inferences from the findings of this study concerning the impacts of Project SUCCESS on these three outcomes by ensuring that the control and treatment samples were highly similar to one another at baseline. As such, equivalence at baseline and a relatively large sample size ensured the precision and power of this study to detect differences in mean climate and engagement scores and differences in achievement between students in Project SUCCESS and students in ATS (Shadish et al., 2002).

Research Questions and Hypotheses

The primary purpose of this study was to examine the impacts produced by a significant structural change within the middle school environment. Therefore, the following research questions and hypotheses were designed to ascertain whether a fundamental change in organizational structure would change teacher practice and produce significantly different student outcomes than business-as-usual ATS in middle schools:

1. Was there a statistically significant difference in classroom climate scores between students in Project SUCCESS and students in ATS?

- H_0 : There will be no statistically significant differences in classroom climate scores between students in Project SUCCESS and students in ATS.
 - H_1 : Students in Project SUCCESS will have more positive perceptions of classroom climate than students in ATS.
2. Was there a statistically significant difference in engagement scores on the post School Engagement Index between students in Project SUCCESS and students in ATS?
- H_0 : There will be no statistically significant differences in engagement scores between students in Project SUCCESS and students in ATS.
 - H_1 : Students in Project SUCCESS will report a stronger sense of school engagement than students in ATS.
3. Was there a statistically significant difference in achievement growth between students in Project SUCCESS and students in ATS?
- H_0 : There will be no statistically significant differences in achievement growth between students in Project SUCCESS and students in ATS.
 - H_1 : Students in Project SUCCESS will show greater reading growth and better grades than students in ATS.

Methods

Participants

This study was implemented in grade 6 in two middle schools in a large suburban-urban school system in a state in the Mid-Atlantic. Each school had two Project

SUCCESS sections in grade 6 ($n = 87$). The control condition in this study included the majority of the remainder of grade 6 students in each school ($n = 313$). Students who entered both schools after randomization occurred were not included in the study. The average number of students between both schools who were included in the study was 200. As per the schools' requests, approximately 22% of this pool of grade 6 students were randomly assigned to treatment and 78% were assigned to control.

Grade 6 teachers from both schools also participated in this study ($n = 12$). The principal of each school recruited two teachers who were assigned to Project SUCCESS for the entire 2017 school year ($n = 4$). In addition, teachers in ATS in both schools were recruited to take the Teacher Climate Perception Measure (TCEM) in April 2017 ($n = 8$).

In May 2016 the researcher collaborated with each Project SUCCESS liaison to randomly assign students to both treatment and control conditions for the study. Before randomization could occur, each team had to remove level one and two ESOL students and students with special needs who received over 10 hours of service from their grade 6 spreadsheets. This was done because of the academic needs of these two relatively small populations of students demand intensive support that did not align with the schedule Project SUCCESS provided. To withhold the services these students required for eligibility for assignment to Project SUCCESS would have been unethical (Shadish et al., 2002).

Data from the two participating schools was largely combined for the bulk of our analysis in this study. Table 4 shows the pooled demographic data of grade 6 students who participated in the study.

Table 4

Pooled Participant Demographic Data

Subgroup	Participants (%)
Female	51.0
Asian	11.3
African American	34.8
Hispanic	41.5
Multi-Racial	2.0
White	10.5
Free and Reduced Meals	57.5

While the number of males and females in the study sample was relatively balanced, Table 5 shows that slightly more girls than boys were randomly assigned to Project SUCCESS (57% of the Project SUCCESS participants and 50% of the ATS participants were girls). This 7% difference in the sex composition of the groups was not a statistically significant difference ($p = .19$). Overall, the treatment and control had similar proportions of the schools' racial, ethnic, and socioeconomic subgroups.

Table 5

Treatment and Control Participant Demographics

Subgroup	Project SUCCESS	ATS
Female	57.0%	50.0%
Asian	12.6%	10.9%
African American	33.3%	35.1%
Hispanic	43.7%	40.9%
Multi-Racial	1.2%	2.2%
White	9.2%	10.9%
Free and Reduced Meals	60.9%	56.6%

Project SUCCESS existed as an accepted alternative structure to ATS in grade 6 in both participating middle schools. Therefore, a randomized control trial provided equal access to either program. Further, ATS is the accepted standard of instructional delivery in the participating school system and as such, it provides the same access to the core curriculum content as Project SUCCESS. Ultimately, any differences between the Project SUCCESS and ATS groups that emerged after random assignment can reasonably be attributed to the program rather than to student characteristics; that is, we can be confident that Project SUCCESS caused the observed differences that emerged.

Power of the Design to Detect Impacts on Student Outcomes

With two middle school sites included in Project SUCCESS, a total of 87 students were randomly assigned to treatment and 313 to control. In estimating the power of our design to detect impacts, our power analyses utilized a 2-level fixed-effects blocked

individual random assignment design to estimate the minimum detectable effect size (MDES) and included an alpha level of .05, a statistical power of .80, and pretest measure as a Level 1 covariate with a two-tailed t test (Nianbo & Maynard, 2013). As such, our design had the power to detect a MDES of .234.

The use of unequal sample sizes was a result of practical considerations that restricted the number of students that could be assigned to treatment (Shadish et al., 2002). Each school had the staffing capacity to provide two sections of Project SUCCESS, which produced an approximately one-fifth treatment to four-fifths treatment to control ratio for random assignment. Each school served as a block in our 2-level fixed-effects individual random assignment design with a mean of 200 students participating in the study in each school (Nianbo & Maynard, 2013). In restricted random assignment with unequal sample sizes, we have aligned our design with Shadish et al.'s (2002) recommendation to include two level 2 units for linear regression effects (Nianbo & Maynard, 2013). Thus, adding a second school in this study provided the power to detect a MDES of .234 versus .331 if our study was restricted to one school (Nianbo & Maynard, 2013).

Instrumentation

We assumed that Project SUCCESS teachers would provide more affective support (McPartland, 1987), opportunities for mastery learning (Midgley, Anderman, & Hicks, 1995), and encourage more classroom interaction (Urdan & Schoenfelder, 2006) and autonomy (Buchanan et al., 1991) as a result of the increased time they spent with one group of students in a semi self-contained organizational structure. The implementation of these strategies can be viewed as causes that potentially influenced

students' engagement (Wallace, 2007), achievement (Becker, 1987), and perceptions of the classroom environment (Wang & Holcombe, 2010). Table 6 shows the indicators, data sources, and timelines for the evaluation of these outcomes.

Table 6

Outcome Evaluation Matrix

Indicator	Role of Indicator	Data Sources	Frequency
Dimensions of the classroom environment: Mastery goals, performance goals, autonomy, interaction, affective support Four dimensions of school engagement: Behavioral, emotional, cognitive, social	Moderating Variable	Teacher Classroom Environment Measure (TCEM)	April 2017
		School Climate Perception Measure (SCPM)	February 2017
	Mediating Variable	School Engagement Index	May 2017
Achievement	Dependent Variable	MAP-R (Measures of Academic Progress)	Spring 2016 Spring 2017
		GPA	Spring 2017

Classroom Climate and Pedagogy. We utilized two tools to collect data on the implementation of these instructional strategies and teachers' and students' perceptions of the classroom environment, the TCEM (Feldlaufer, Midgley, & Eccles, 1988) and the School Climate Perception Measure (SCPM) (Wang & Holcombe, 2010). Data from the TCEM was used to help us unpack to what extent a significant change in organizational structure impacts pedagogy. The TCEM was administered to Project SUCCESS teachers

and to a science, social studies, English, and digital literacy teacher in ATS in each school in May 2017.

We used the SCPM to measure to what degree students' perceived that teachers in Project SUCCESS and ATS used student-centered instructional strategies (Wang & Holcombe, 2010). We administered the SCPM to students in Project SUCCESS and ATS in February 2017 based on the assumption that by the end of the first semester of grade 6 both students and teachers have formed perceptions about one another, their classmates, and school structures and routines.

School Engagement. We used the School Engagement Index (SEI) to answer our question about between group differences in school engagement. The SEI was administered in October and May of the 2016–2017 school year and consists of 30 items that assess a multidimensional construct including students' behavioral, emotional, cognitive, and social engagement in school. The SEI has been validated with both middle and high schools students and is more comprehensive than the scales used by Wang and Holcombe (2010) in their path analysis on school environment, engagement, and achievement.

Academic Achievement. In order to assess whether there was a statistically significant difference in achievement growth between the students in the treatment and control groups, we used students' scale scores on the Measures of Academic Progress in Reading (MAP-R)¹. In addition to a global score based on the Rasch unit scale (RIT), MAP-R includes foundational vocabulary and informational and narrative RIT scales as

¹ MAP scale scores are reported on a Rasch unit scale, a stable equal-interval scale that is appropriate for measuring student growth in achievement over time.

well. Moreover, cumulative GPA was used to measure students' academic progress during their first year in middle school.

Procedures

Intervention Design

Project SUCCESS teachers were solely responsible for the daily teaching of English, digital literacy, science, and social studies to an intact group of sixth grade students. This change in structure resulted in Project SUCCESS teachers only teaching one class of students for the school year versus their ATS colleagues who instructed five different classes which typically totaled in excess of 100 students. As such, Project SUCCESS teachers had significantly more contact time with one group of students to imbue the classroom environment with a sense of community through increased affective support, classroom discussion, and mastery versus performance oriented learning (Cuban, 1988; Wang and Holcombe, 2010).

The participating teachers also had at least one daily common period to develop interdisciplinary curricular connections, conduct short and long term planning, and match instructional strategies to the needs of their students (Hackman and Valentine, 1995). Furthermore, each participating middle school enlisted the staff development teacher or assistant principal to serve as a Project SUCCESS liaison to help guide these daily interdisciplinary planning sessions by implementing planning structures and meeting processes that maximized the use of common time.

Intervention Structure. Each Project SUCCESS class consisted of approximately 22 students. In school 1 with an alternating eight-block schedule, students in Project SUCCESS had six periods over a two-day span with one significantly longer

block lasting approximately 180 minutes each day. School 2 used a traditional seven period schedule which resulted in students spending 180 minutes in Project SUCCESS with three other daily periods. Thus, students in Project SUCCESS had three fewer teachers, two fewer daily class transitions, and one group of classmates to learn with approximately half of every school day. Finally, spending 180 minutes with one teacher and peer group provided a stable and extended period of time for students to get to know one another, work cooperatively, and personally identify with one teacher who had more time to invest in their engagement and achievement in school (Wallace, 2007).

Implementation Timeline. The implementation of Project SUCCESS for this study lasted one full school year. Each principal recruited two teachers with Maryland elementary certification, grades 1-6, or middle school certification, grades 4-9, to serve as Project SUCCESS teachers during the 2016-2017 school year. In addition, a science, social studies, digital literacy and English teacher in the conventional ATS structure from each middle school participated in the study by agreeing to be surveyed on their perceptions of the classroom environment and the kinds of instructional strategies they employ.

Each principal designated a staff member to serve as a school based liaison to assist in managing the following elements of the intervention: (a) data collection and analysis for student assignment, (b) random assignment, (c) instructional schedule development, and (d) interdisciplinary planning support. In April 2016, the researcher collaborated with both Project SUCCESS liaisons and each school's master scheduler to develop the unique scheduling structure that is the underpinning of the intervention. In the spring of 2016, 22% of the incoming sixth-graders were randomly assigned to Project

Success and rest to business-as-usual departmentalization (ATS control group) using a table of random numbers and in collaboration with the schools' staffs. Finally, in August 2016, a former Project SUCCESS teacher provided a full day training for the four teachers that focused on community building and interdisciplinary planning.

Restructured Schedules. Scheduling students in Project SUCCESS significantly changed their first year of middle school. As illustrated in the logic model in appendix C, students had one teacher for four subjects with an intact peer group for 180 minutes of each school day. Thus, students in Project SUCCESS had the opportunity to bond with one teacher and one group of students for approximately half of each school day.

Implementation of this process included using scheduling software to assign students to Project SUCCESS and their other core and elective classes. Class tallies provided evidence that the two Project SUCCESS treatment groups were enrolled. In addition, the sixth grade counselor and master scheduler used class tallies monthly throughout the school year to monitor enrollment in the program.

Restructured teacher schedules are a primary indicator of the change model represented in the theory of treatment for this study. It was necessary to implement two schedules that aligned the Project SUCCESS teachers' instructional schedules, planning, and professional development periods. This fidelity measure entailed utilizing the schools' scheduling tools in June 2016 to arrange the integral components of the two teachers' schedules illustrated in the activities in the logic model in appendix C.

Interdisciplinary Instruction. Each Project SUCCESS teacher was responsible for unifying four subjects in Project SUCCESS. The logic model in appendix C depicts the Project SUCCESS teachers' daily common planning time as a vital input and source

of data for measuring the fidelity of implementation of this indicator. Subsequently, teachers' utilized this common time to develop nine-week plans that included enduring understandings that unify the curricula and essential questions that guide instruction and anchor learning across the content areas. The Project SUCCESS teachers modified their nine-week plans based on the emerging needs of students and pacing within the scope and sequence of the unified curriculum.

Data Collection

As shown in Appendix C, teachers in the treatment and control settings in both schools completed the TCEM in May 2017. The Project SUCCESS liaisons administered the SCPM to students in February 2017. In addition, we administered the SEI in May 2017.

We examined RIT scale scores from multiple administrations of the Measures of Academic Progress in Reading (MAP-R). These observations include MAP-R scores from the spring of grade 5 and the spring of grade 6. Thus, our data includes standardized reading scores from the terminal grade in elementary school and the first year of middle school. Students' scores in the spring of grade 5 (2016) were utilized to test for equivalence at baseline. Finally, students' cumulative GPA was collected and analyzed at the conclusion of their sixth grade year.

Data Analysis

In their path analysis, Wang and Holcombe (2010) used structural equation modeling to establish links between students' perceptions of the classroom environment, engagement, and achievement. However, Wang and Holcombe (2010) note the possibility that variation in students' perceptions of the school environment might be

reduced owing to a shared experience of the same school. Here we extend their analysis by introducing a fundamental change in school structure as the independent variable in a randomized control trial. Therefore, the intent of this study was to assess possible differences between how students in the treatment and control groups engaged in school, perceived instruction in their classrooms, and performed academically. Thus, we did not measure the relationships among these variables, but rather the impacts of the Project SUCCESS on these variables.

An alpha level of .05 was used to test for equivalence at baseline as well as for the subsequent analysis of impacts of Project SUCCESS on students' classroom climate perceptions, engagement, and achievement outcomes.

The study's design gives us sufficient statistical power to detect even relatively small impacts on students' outcomes. For example, in our analysis of the impact of Project SUCCESS on students' achievement in Spring 2017 -- with Spring 2016 achievement as a covariate and a total sample size of 398 students with achievement data -- we have enough power to detect an impact of Project SUCCESS on achievement as small as one-fifth of a standard deviation.

We anticipated that the intervention's effects might be one-third of a standard deviation or larger on school engagement, achievement, and students' perceptions of the classroom environment. Prior research suggests that a moderate effect size of this magnitude can be produced by interventions similar to Project SUCCESS that focus on implementing school structures that enhance the social dimensions of secondary school instruction (Appleton, Christenson, & Furlong, 2008; Johnson, 2008).

For example, Johnson (2008) examines differences in mean engagement levels between communally oriented and traditionally structured high schools and finds an effect size of .54 for engagement in the non-traditional high school that implements mastery learning and pedagogical caring. Furthermore, Appleton et al. (2008) discuss the impact of the Check and Connect program on school engagement in a randomized field trial with a sample of 144 ninth grade students and finds effect sizes that ranged from .26 to .58. Check and Connect reduces school dropout rates and supports students through structural school transitions (Appleton et al., 2008).

An explicit focus of Project SUCCESS is developing students' skills in accessing and comprehending content specific texts. Teachers use the digital literacy curriculum to develop students' reading comprehension, writing, and research skills across core content in English, science, and social studies. In a similar approach to improving middle school literacy, Balfanz & MacIver (2000) observed an effect size of .51 after the first year of implementing the Student Team Literature program. Furthermore, after multiple years of implementation with two cohorts of students, MacIver, Balfanz, Ruby, Byrnes, Lorentz, & Jones (2004) find an effect size of .29 for the Student Team Literature program, or 1.3 standard deviations more than the three comparison schools included in their study. While the implementation of these interventions exceeds the scope and length of this study, a range of effect sizes between .25 and .60 nonetheless suggest that our objective of producing impacts on key outcomes of one-third of a standard deviation or larger was a realistic goal.

Baseline Equivalence Test. Because this study assigned students randomly to the Project SUCCESS and control groups, it is reasonable to assume that the two groups

were similar at the start of the study in Fall 2016. In the results section, we demonstrate the equivalence of the groups at the start of the study by comparing the means of the two groups on a test that was given prior to randomization (the MAP-R given in Spring of Grade 5).

Achievement. To examine whether Project SUCCESS had an effect on student achievement, we compared the cumulative GPAs and MAP-R scores of the two groups in Spring of Grade 6, using linear regression models that included students' prior achievement and assigned school in Grade 6 as covariates. Finally, since Becker's (1987) quasi-experimental analyses suggested that semi-departmentalization was beneficial for most sixth graders and helped close achievement gaps between students from low and low-middle social backgrounds, we conducted regression analyses examining whether the achievement growth gap between students who qualified for free and reduced meals (FARMS) and students from higher SES backgrounds was smaller in the Project SUCCESS group than in the ATS group.

Classroom Environment. Lantz (2015) suggests that the literature on the selection of a statistical methodology that adequately accounts for the existence of ordinal data is rife with debate on the pros and cons of both parametric and non-parametric analysis techniques. However, in comparing results of a variety of tests performed on simulated data, Lantz (2015) shows fairly limited differences between test results. Therefore, we elected to employ a parametric technique, a linear regression model, to examine the impact of Project SUCCESS on students' perceptions on the SCPM.

School Engagement. We estimated the impact of Project SUCCESS on four domains of school engagement using linear regression models.

CHAPTER 5

FINDINGS AND DISCUSSION

Introduction

Since the 1980's, research on middle years schooling has produced a wealth of data on the outcome variables included in this study. However, owing to a lack of structural variation within individual middle schools, much of this research has necessarily focused on the differences in outcomes produced by various school types (K-5, 6-8, K-8) and interventions that focus on changing teachers' beliefs and practices through professional development. Moreover, the research literature on middle school reform has documented differences between elementary and middle grades schools in teacher practice and goal orientations (Midgley et al., 1995) and student attitudes and achievement (Midgley et al., 1989). Subsequently, this study potentially fills a conspicuous gap in the literature by introducing a significant organizational change that allows for an examination of the effects of two different structural conditions, Project SUCCESS and ATS, within two middle schools.

Evaluation of Implementation

Two middle schools agreed to make a yearlong commitment to implementing a fundamentally different organizational structure, Project SUCCESS, alongside business-as-usual ATS. First, both schools were required to develop instructional schedules for Project SUCCESS that fit within each school's master schedule (A/B alternating day block or seven period schedule). Second, each school had to recruit two teachers and provide them with an extra daily release period to account for the rigors of planning and instructing four subjects. In addition, each set of teachers in both schools had the same

period off to allow them to plan together. Finally, incoming grade 6 students were randomly assigned to Project SUCCESS and ATS in the spring of 2016.

Student Participant Engagement

Students who were randomly assigned to Project SUCCESS received a letter from their principal in the summer of 2016 that described the history, dimensions, and purpose of the program. In September of 2016, the schools distributed consent forms to grade 6 students assigned to Project SUCCESS and ATS. Neither school had a case where a parent or guardian opted out of allowing their child to participate in the study. In addition, since Project SUCCESS was being offered for the first time at school 2, the researcher presented information about both the program and the study to parents at back to school night.

Project SUCCESS Student Schedules

Creating a semi self-contained learning community reduced the number of teachers that students had in grade 6 in both schools. Figure 5 illustrates how the master scheduler in school 1 was able to establish the Project SUCCESS schedule within the structure of the standard A/B alternating day block schedule. Students in Project SUCCESS followed this schedule for the entire 2016–2017 school year. In addition, the master scheduler ensured that grade 6 mathematics courses, physical education, and electives were available during periods 1, 6, 7, and 8.

As shown in Figure 5, 180 minutes in Project SUCCESS accounts for approximately half of each instructional day and it generally included instruction in two integrated subjects. Students in ATS followed the standard A/B alternating day block

schedule where they received instruction in eight subjects from eight different teachers over a two-day span.

Even Day		Odd Day	
Period	Subject	Period	Subject
2	Two subjects 180 minutes	1	Math, PE, or elective
4		3	Two subjects 180 minutes
6	Math, PE, or elective	5	
8	Math, PE, or elective	7	Math, PE, or elective

Figure 5. Project SUCCESS student schedule for school 1 within the standard A/B alternating day block schedule.

Figure 6 shows the schedules for both students and teachers in school 2. Like the even day schedule for school 1, students in school 2 began each day in Project SUCCESS. In periods 3-5 Project SUCCESS teachers integrated English, science, and social studies. Teachers used digital literacy in period one to build students' research and writing skills. Moreover, digital literacy was a means for integrating the curriculum as students completed projects based on the enduring understandings of each nine-week quarter.

Period	Student Schedule	Teacher Schedule
1	Digital literacy 45 minutes	Instruction
2	Math, PE, elective	Grade 6 team meeting
3 4 5	Three subjects 135 minutes	Instruction
6	Math, PE, elective	Collaborative Planning
7	Math, PE, elective	

Figure 6. Project SUCCESS student and teacher schedules for school 2.

Project SUCCESS Teacher Schedules

Project SUCCESS teachers taught four subjects to the same intact class of students. As a result, when students were not in their Project SUCCESS class, the teachers attended various meetings and had common planning time during first period in school 1. Common planning time was used by the teachers in both schools to develop interdisciplinary content, pace instruction through the use of nine week planners, and analyze student outcomes. In addition, both Project SUCCESS teachers in school 1 attended literacy department meetings held during period 6. Figure 7 illustrates how the Project SUCCESS teachers had common planning time and literacy department meetings every other day of the week.

Even Day		Odd Day	
Period	Subject	Period	Subject
2	Two subjects 180 minutes	1	Common planning
4		3	Two subjects 180 minutes
6	Literacy department meeting	5	
8	School leadership meeting	7	Grade 6 team meeting

Figure 7. Project SUCCESS teacher schedule for school 1 within the standard A/B alternating day block schedule.

Project SUCCESS teachers in both schools attended grade 6 team meetings. Further, Figure 7 shows that Project SUCCESS teachers in school 1 also attended school leadership meetings when they were held during eighth period. Finally, it is important to note that Project SUCCESS teachers in both schools taught one less section than what is stipulated in the teacher contract in the school system where the study took place. Both principals who participated in the study agreed that an extra planning period was

necessary for the teachers to be able to plan interdisciplinary instruction and account for the challenges of implementing a new program.

Teacher Recruitment and Engagement

Each principal gauged interest in teaching Project SUCCESS by discussing the program with teachers already working in their schools. School 1 had implemented two sections of Project SUCCESS the prior school year (2015–2016) and one of the two teachers volunteered to continue in the role during 2016–2017. School 2 was implementing Project SUCCESS the first time so the principal began to actively recruit teachers for the program in the second semester of the 2016 school year. The researcher and a former Project SUCCESS teacher from school 1 met with the sixth grade team in school 2 in February 2016 to share details about the program. During the meeting, grade 6 teachers asked questions about the program and seemed open to the possibility that Project SUCCESS would be implemented in their school the following year.

The principals were primarily responsible for selecting the teachers who agreed to teach Project SUCCESS and participate in this study. When teachers agreed to teach in the program, they were also informed that a yearlong study was going to be conducted and their participation in it would be entirely voluntary. By the conclusion of the 2016 school year, two teachers in each school had committed to teaching Project SUCCESS the following year.

The four Project SUCCESS teachers came from a variety of teaching backgrounds and content expertise. In addition, their length of service in education ranged from relatively new to over a decade of experience. Table 7 shows that the majority of experience of the Project SUCCESS teachers was in the humanities. Aside

from one teacher who taught all subjects at the elementary level prior to becoming a middle school teacher, none of the Project SUCCESS teachers had taught math or science at the middle school level in the past.

Table 7

Project SUCCESS Teachers' Area of Specialization and Experience

Teacher #	Content Background	Years of Teaching Experience	Years Teaching in Project SUCCESS
1	Social studies	7	0
2	Social studies	2	0
3	English	10	0
4	Reading/English	12	1

All four Project SUCCESS teachers taught in the program for the duration of the study and the school year. In August 2016 a former Project SUCCESS teacher at school 1 who left the position to become a teacher specialist, conducted a half-day seminar for the new Project SUCCESS teachers in school 2. The seminar focused on curriculum integration and community building within Project SUCCESS classrooms. Further, the researcher conducted two site visits at each school during the study to informally observe instruction and discuss implementation of the program. The researcher and teacher specialist also communicated with the Project SUCCESS teachers via email when they had questions about the program. Finally, the Project SUCCESS liaison in each school ensured that the participating teachers administered the surveys needed for the study and served a vital role collecting data and communicating directly with the researcher.

Project SUCCESS Curriculum

The two teachers who led Project SUCCESS at its inception in 2014 developed the interdisciplinary curriculum for the program. Having little to start with other than the existing grade 6 curricula, these two teachers utilized each subject's essential

understandings and essential questions (along with curriculum indicators) to make interdisciplinary connections. In addition, the original teachers had the support of central office instructional specialists in their efforts to integrate the four different subjects.

The development of the Project SUCCESS curricula in school 1 evolved over the three years prior to the start of the study. After the first two years of the program, one of the original teachers left and was replaced by an elementary-trained educator who bolstered the identification of interdisciplinary connections. The interdisciplinary curriculum was conceived through the careful analysis of the essential understandings and questions within each existing curricula. The plan in appendix D shows Project SUCCESS-specific enduring understandings for each marking period. During the duration of the study, both schools used and updated the interdisciplinary curriculum as necessary.

The common tasks included in the English curriculum were used as a foundation for creating interdisciplinary learning experiences for students. For example, appendix D shows how in the first quarter Project SUCCESS teachers integrated the understanding of patterns in social studies with how an author develops a character in a text. Both lesson sequences made explicit connections to identifying patterns and creating generalizations based on those patterns (about a civilization in social studies, or about an author's intent in English). In science, the teachers extended this idea by focusing on properties of pure substances. As such, teachers helped students develop generalizations that provided opportunities for students to develop their own cross-curricular understandings.

Teachers expected students in Project SUCCESS to create products that reflected their interdisciplinary understandings. For example, students were required to write a

scene from an adventure story that included biotic and abiotic factors that realistically enhanced the setting, characters, and plot. Throughout this process, Project SUCCESS teachers primarily used expository texts to help students unpack content and develop their reading comprehension skills.

Project SUCCESS teachers used a standards-based grading system structured on a five-point scale. All assignments were worth five points in order to adhere to grading and reporting guidelines put forth by the school system. Most assignments were split into specific skills. A short writing assignment might have three separate grades for each of the following skills: “I can write a claim”; “I can provide evidence that directly connects to the claim”; “I can conclude my writing by providing an analysis of my claim and evidence.” Subsequently, students in Project SUCCESS typically received very specific feedback on their progress.

Random Assignment

We collaborated with both schools to assist with randomization. In the spring of 2016, the Project SUCCESS liaison at each school assembled a spreadsheet of incoming grade 6 students. As such, 22% of the incoming fifth grade students were randomly assigned to *Project SUCCESS* (treatment) and 78% of the students to business-as-usual departmentalization (control) in each middle school. Across the two schools, 87 students were assigned to Project SUCCESS and 313 students were assigned to the departmentalized control sections. Students who were scheduled to receive over 10 hours of special education services or intensive support for language acquisition (ESOL 1 or 2) were not included in the process. Despite the fact that random assignment was an atypical

practice for grouping students in the two participating middle schools, the process was nonetheless followed with fidelity.

An alpha level of .05 was used to test for equivalence as well as for the subsequent analysis of classroom climate, engagement, and achievement outcomes. Students' MAP-R scores from the spring of fifth grade were used as the achievement measure for equivalence testing. Consequently, this data point occurred prior to students being exposed to either treatment or control in the fall of grade 6. Analysis of students' grade 5 spring MAP-R scores showed a difference in means of 1.56 between treatment ($M = 216.44$, $SD = 12.39$) and control ($M = 214.88$, $SD = 13.27$) with an effect size of .12 and significance level of .33. Thus, there was equivalence at baseline between the two groups of students in the study.

Findings

Research Question One

The first research question we sought to answer was whether there was a statistically significant difference in climate scores between students in Project SUCCESS and students in ATS. The H_0 for this variable stated that there would be no statistically significant differences in perceptions of the classroom environment between students in Project SUCCESS and students in ATS. The H_1 stated that spending half of each school day with one teacher and one intact peer group would result in students in Project SUCCESS possessing stronger perceptions of the classroom and school environment than students in ATS. Findings indicate rejection of the H_0 and point to several important differences between how students in Project SUCCESS and ATS perceive classroom and school climate.

The SCPM was administered in February 2017 and included 20 questions that signify the following five domains for school and classroom climate: (1) promotion of performance goals, (2) promotion of mastery goals, (3) support of autonomy, (4) promotion of discussion, and (5) teacher social support (Wang & Holcombe, 2010). If an item(s) did not contribute positively to a scale's reliability, we omitted it from the final scale for that construct. As such, the performance goal domain was reduced from a four-item to a three-item scale (Cronbach's $\alpha = .72$) and the mastery goal domain was reduced from a four-item to a two-item scale (Cronbach's $\alpha = .64$). (Appendix A lists the items measuring each of the five scales from the SCPM.)

Table 8 presents the adjusted means, impacts, significance levels, and effect sizes for Project SUCCESS and control on each domain of the SCPM. Impacts on students' perceptions were estimated using multiple regression with school and prior MAP-R scores from the spring of grade 5 as covariates. First, students' perceptions on the three-item performance goal structure differed significantly between Project SUCCESS and control. Multiple regression analysis indicated that students in ATS had significantly stronger perceptions than students in Project SUCCESS that teachers pay too much attention to grades and not enough attention to helping students learn, treat students who get good grades better than other students, and only care about the smart kids. In other words, as shown in Table 8, Project Success reduced students' perception that the classroom environment had a performance goal structure by .283 points, an effect size (d) of -.30 standard deviations. Conversely, students in Project SUCCESS showed (marginally significantly) higher scores than students in ATS on the two-item composite scale for mastery goal structure. That is, students in Project SUCCESS had stronger

perceptions than students in ATS that everyone can get good grades if they do their very best and that trying hard counts a lot (an adjusted mean difference of .191 points, which indicates a .22 standard deviation increase in the classroom's perceived mastery goal structure).

Table 8

Impacts of Project SUCCESS on Students' Perceptions of the School/Classroom Environment in February 2017

Domain	Adjusted Means		Impacts	p-value	Effect size
	Project SUCCESS	Control			
Performance goal structure	2.44	2.72	-.283	.02*	-.30
Mastery goal structure	4.37	4.17	.191	.08†	.22
Support of autonomy	2.43	2.49	-.060	.48	-.09
Promotion of discussion	3.44	3.49	-.058	.51	-.08
Teacher support	2.63	2.54	.086	.49	.09

Note: Impacts were estimated using multiple regression with school and prior MAP-R score in spring 2016 as covariates.

* $p < .05$ † $p < .10$

Finally, Table 8 shows that a significant change in formal structure resulted in no statistically significant differences between the perceptions of students in Project SUCCESS and students in ATS on teachers' support of autonomy (-.060, $d = -.09$), promotion of discussion (-.058, $d = -.08$), and the social and personal care they provide students (.086, $d = .09$).

Teacher Perceptions. The TCEM was administered in May of 2017. It was intended to measure teacher perceptions in the following classroom environmental constructs: student input, task organization, classroom interaction, grading practices, and social support (Feldlaufer et al., 1988). Our purpose in assessing these constructs was to attempt to distinguish whether the two organizational structures influenced the instructional practices of teachers in different ways. Subsequently, analyzing teachers' perceptions of their own instructional practices complemented our examination of

students' perceptions of the classroom environment on the SCPM. However, given that teachers, unlike students, were not randomly assigned and that the sample of teachers is small, the differences in teacher practices reported below may not replicate in other samples.

We formed a two-item scale to measure the degree to which each teacher solicited input from students: (asking them what they want to learn about and asking them to contribute quiz or test questions). This two-item scale had an internal consistency reliability of .72. A third item, regarding student's role in selecting projects -- "Students can work on projects they think up completely on their own" -- was not included in the student input scale, and is reported separately, because it was negatively correlated with the scale ($R = -.129$.)

We formed a two-item scale measuring the degree to which each teacher allowed students to interact with and help each other while they worked in class. This peer cooperation/interaction scale had an internal consistency reliability of .63.

We also formed a two-item scale measuring the social support each teacher provided to their students by assisting students with personal or social problems at school and by speaking to them about how things are going in their lives. This scale was highly reliable ($\alpha = .89$).

The four-items intended to measure task organization did not form a reliable scale (Cronbach's $\alpha = .06$), therefore each of these four items are reported separately in table 9. Similarly, two items measuring teachers' grading practices did not form a consistent and reliable scale (Cronbach $\alpha = .255$) and thus are reported separately as well.

Table 9 shows means, standard deviations, and effect sizes for Project SUCCESS and ATS on the scaled constructs and several individual items on the TCEM.

Table 9

Impacts of Project SUCCESS on Teachers' Perceptions of the Classroom Environment in May 2017

Measures	Project SUCCESS		Control		Effect Size
	Mean	SD	Mean	SD	
Student input scale	3.50	.41	2.81	1.03	.97
Peer cooperation/interaction scale	4.38	.48	4.06	.56	.56
Social support scale	4.50	.58	4.13	.99	.38
Individual Items					
Students can work on project they think up completely on their own	3.50	1.00	3.13	.84	.45
Most students in this class use the same textbooks and materials	3.00	.82	3.38	1.06	-.36
Students are given several alternative assignments from which they can choose to work on for that period	3.50	1.29	3.25	1.29	.20
Students are given the opportunity to work on their own for several days before checking with me	2.00	.82	2.75	.71	-1.06
Students work at a variety of different activities and assignments at the same time in this class	3.75	.50	3.63	.52	.23
I give grades on homework assignments	3.25	.96	4.25	1.17	-.86
I give grades on classwork	4.50	.58	4.63	.74	.17
Students ask me how they are doing compared to other students in class	2.00	1.41	1.88	.84	.14

Table 9 shows that there were moderate to large effect sizes for several of the constructs and individual items on the survey. On the two-item scale for student input, Project SUCCESS had a substantial impact on teachers' perceptions that they allowed students to give input on what they wanted to learn about and provide questions for tests and quizzes ($d = .97$). Project SUCCESS also produced a relatively large effect on teachers' perceptions of the degree to which they encouraged peer cooperation and interaction ($d = .56$). That is, Project SUCCESS seemed to increase teachers' willingness

to allow students to talk to one another while they worked in class and to ask one another for help. Finally, in the realm of social support in the classroom, teachers in Project SUCCESS felt somewhat stronger than teachers in ATS that they helped students with social and personal problems and talked to them about how things were going in their lives ($d = .38$).

We observed several notable differences between teachers in Project SUCCESS and ATS on the individual items on the TCEM. For example, Project SUCCESS had a moderate effect on teachers' willingness to allow students to work on projects they thought up on their own ($d = .45$). Conversely, teachers in ATS had moderately stronger perceptions than teachers in Project SUCCESS that they organized instruction so that most students used the same materials and texts in the classroom ($d = -.37$). Likewise, teachers in ATS had substantially stronger perceptions that they gave students the opportunity to work on their own for several days without checking in with them ($d = -1.06$). Further, there were large differences in the way teachers in each condition approached grading. As such, teachers in ATS felt substantially stronger than teachers in Project SUCCESS that grading homework is important ($d = -.86$) whereas teachers in Project SUCCESS felt marginally stronger that grading classwork is important ($d = .17$).

Research Question Two

The progressive school disengagement that begins to occur after the transition from elementary to middle school was the subject of our second research question. It was assumed that school engagement would serve as the mediating variable for academic achievement in both our theory of treatment and in the design of Project SUCCESS. The H_0 indicated that there would be no apparent differences in engagement on the SEI

between students in Project SUCCESS and students in ATS. The H_1 for engagement posited that students in Project SUCCESS would demonstrate higher levels of school engagement over the course of grade 6 than students in ATS.

Table 10 shows adjusted mean scores from Project SUCCESS and the control group, estimated impacts and p-values, and effect sizes in standard deviation units for measures drawn from each engagement domain: cognitive, behavioral, emotional, and social. All four domains were measured by multi-item scales (See Appendix A). In addition, one aspect of social engagement that was crucial in our theory of treatment was measured by a single item, “Interacting with peers is an important part of school for me.”

Table 10

Impacts of Project SUCCESS on School Engagement in spring 2017

Domain of Engagement	Adjusted Means		Impact	p-value	Effect size
	Project SUCCESS	Control			
<i>Cognitive</i>					
Six-item scale	3.99	4.02	-.026	.74	-.04
<i>Behavioral</i>					
Eight-item scale	3.87	3.90	-.035	.64	-.06
<i>Emotional</i>					
Eight-item scale	3.55	3.52	.027	.77	.04
<i>Social</i>					
Eight-item scale	4.07	4.03	.035	.66	.05
“Interacting with peers is an important part of school for me.”	4.02	3.64	3.84	.01**	.31

Note: Impacts were estimated using multiple regression with school and prior MAP-R scores in spring 2016 as covariates.

The p-value of the test on this outcome exceeds the critical p-value of .025 required by the Benjamini-Hochberg procedure to account for the fact that **two measures were tested in the Social Engagement domain.

We could not reject the null hypothesis based on results from multiple regression models that indicated no statistically significant differences between students in Project SUCCESS and students in ATS on the broad scales of cognitive ($-.026$, $d = -.04$),

behavioral ($-.035$, $d = -.06$), emotional ($.027$, $d = .04$), and social ($.035$, $d = .05$) engagement. However, students in Project SUCCESS were much more likely than students in ATS to agree with the individual item “Interacting with peers is an important part of school for me,” an impact of .384 points with an effect size of .31 standard deviations. This item was an important indicator of our a priori hypothesis that students in Project SUCCESS would be more engaged with their peers in school as a result of spending half of each instructional day with one intact group of students. Note that this impact is statistically significant even after using the Benjamini/Hochberg procedure to account for our “multiple comparisons” in this domain.

Research Question Three

The third and final research question in this study asked about differences in achievement between students in Project SUCCESS and students in ATS. The H_0 indicated that there would be no differences in MAP scores and grades between treatment and control. Conversely, we hypothesized (H_1) that a fundamental change in school structure that allowed students to spend significantly more time with one teacher and one intact peer group (and to receive coherent interdisciplinary instruction across content areas) would positively impact students’ achievement in grade 6.

Reading Achievement. Table 11 shows adjusted mean scores on the MAP-R in spring of grade 6 for students in the treatment and control groups, the impacts of Project SUCCESS, the size of these effects in standard deviation units, and the statistical significance of each impact. This information is shown for the full-scale score, and for the 3 subscale scores (literary and informational text reading, and foundational vocabulary).

Table 11

Impacts of Project SUCCESS on Students' MAP-R Scores in Spring 2017

MAP-R scales	Adjusted Means		Estimated Impact	Effect Size	P-Value for Estimated Impact	Still Significant Using Benjamini- Hochberg Critical P- Values?
	Project SUCCESS	Control				
Full-scale	219.96	215.98	3.97	0.27	< .001	Yes
Literary	220.23	215.46	4.78	0.29	.001	Yes
Informational	220.70	216.58	4.12	0.26	.002	Yes
Foundational vocabulary	219.30	215.88	3.43	0.23	.007	Yes

Note: Impacts were estimated using multiple regression with school and the corresponding prior MAP-R score from spring 2016 as covariates.

Impacts on reading achievement were estimated using multiple regression models that controlled for students' corresponding prior MAP-R score from the spring of grade 5 and a dummy variable that indicated students' assigned school in grade 6. Since we tested impacts on four scales in the reading achievement domain (the full scale and the 3 subscales), we used the Benjamini-Hochberg (B-H) multiple comparison procedure to verify that each impact was still significant even after applying the B-H correction to each significance test.

The results from the multiple regression model in table 11 allow for an emphatic rejection of the null hypothesis and support for our prediction that Project SUCCESS would have a significant impact on students' literacy development. That is, the treatment effect of Project SUCCESS on reading development was observed across all four MAP-R scales. The estimated impacts and effect sizes in table 11 illustrate that students in Project SUCCESS showed significantly more progress in reading (3.97, $d = .27$) than students in ATS between the end of grade 5 and the end of grade 6 on the full-scale MAP-R

measure. Likewise, students in Project SUCCESS showed significantly more growth than students in ATS on the literary text scale (4.78, $d = .29$), informational text scale (4.12, $d = .26$), and the foundational vocabulary scale (3.43, $d = .23$).

Becker's (1987) findings that indicated that having fewer teachers in grade 6 (semi departmentalization/self-contained instruction) was associated with higher achievement for students from lower SES backgrounds influenced both the theoretical and empirical approaches of this study. Therefore, we used a separate linear regression model within each group, Project SUCCESS and ATS, to test our assumption that Project SUCCESS would reduce the achievement gaps between FARMS and non-FARMS students in the two participating middle schools (see Table 12). Then, in growth-oriented analyses that controlled for students' prior full-scale achievement score in fifth grade (see Table 13), we tested our assumption that Project SUCCESS would also reduce the gap in reading achievement *growth* between FARMS and non-FARMS students.

Table 12 shows the unadjusted means, standard deviations, and FARMS gaps found in Spring 2017 in the Project Success group and the control group, when each group was analyzed separately.

Table 12

Testing the Size and Significance of the FARMS Gap in Student Achievement (MAP-R Full Scale Scores) in Spring 2017

	Project SUCCESS		Control	
	Means	Standard deviations	Means	Standard deviations
FARMS	219.73	14.76	212.10	14.88
Non-FARMS	222.88	11.99	220.86	13.20
FARMS Gap	-3.15		-8.80***	

*** $p < .001$

Table 12 shows that Project SUCCESS significantly reduced the impact of poverty on achievement. That is, Project SUCCESS reduced the achievement gap between FARMS

and non-FARMS students to a statistically insignificant difference of -3.15 scale score points ($p = .28$). In contrast, spring reading achievement was -8.8 scale score points lower for FARMS students than non-FARMS students in ATS. This achievement gap in the control group was both statistically significant ($p < .001$) and nearly three times the gap found in Project SUCCESS.

Table 13 shows the reading achievement in spring 2017 of FARMS and Non-FARMS students after controlling for students' fifth grade reading achievement by including it in the regression model as a grand-mean-centered covariate. Thus, the adjusted means in Table 13 estimate the mean achievement in spring 2017 for students who, in fifth grade, were at the grand mean of the sample in reading achievement. The adjusted means show that Project SUCCESS completely eliminated the gap in reading achievement *growth* between FARMS and non-FARMS students (FARMS students actually grew two hundredths of a scale score point more than Non-FARMS students in reading achievement. $p = .99$). Unfortunately, the adjusted means in the control group indicate that the reading achievement growth of FARMS students was 2.41 points lower than non-FARMS students in the control group. This FARMS growth gap was statistically significant ($p = .03$).

The adjusted means in Table 13 indicate that assignment to Project SUCCESS especially benefited FARMS students. As such, holding constant prior achievement, the adjusted mean achievement of FARMS students in Project Success (219.89) was 4.97 scale score points higher than the achievement of FARMS students in the ATS control group (214.92). The Non-FARMS students in Project SUCCESS also outperformed the non-FARMS students in the control group, but by only 2.54 scale score points.

Table 13

Testing the Size and Significance of the Gap in Reading Achievement Growth Between FARMS and Non-FARMS Students in Project SUCCESS and the Control Group

	Project SUCCESS	ATS Control Group
	Adjusted Means	Adjusted Means
FARMS	219.89	214.92
Non-FARMS	219.87	217.33
FARMS Growth Gap	.02	-2.41*

Note. The adjusted means and growth gap estimates are from multiple regression analyses that control for 5th-grade reading achievement as a grand-mean-centered covariate. A positive growth gap indicates that FARMS students outgrew Non-FARMS students between Spring 2016 (5th grade) and Spring 2017 (6th grade). A negative growth gap indicates the Non-Farms students outgrew FARMS students during this period.

* $p < .05$

Grades. Academic progress as measured by grades in the first year of middle school is an important indicator of future academic success in high school (Balfanz et al., 2007). Subsequently, this study used cumulative GPA to determine if there were differences between treatment and control in the way students achieved in their course work during sixth grade. In our initial analysis, students in Project SUCCESS had a higher mean cumulative GPA ($M = 3.49$, $SD = .60$) than students in ATS ($M = 3.31$, $SD = .59$). Further, when we controlled for prior achievement by including students' spring grade 5 MAP-R score in the regression model, results indicate that Project SUCCESS had a statistically significant impact (.146, $d = .25$) on students' grades ($p = .01$).

Discussion

Middle schools and junior high schools before them have long been the subject of research on the fit between these schools' environments and the psychosocial and learning needs of early adolescents (Eccles et al., 1993; Midgley et al., 1995). This study assumed that a fundamental change in formal structure in middle schools is possible

despite the structural isomorphism that characterizes organizations that exist within the same organizational field. As such, Project SUCCESS replaced business-as-usual departmentalization for 87 sixth grade students who were randomly assigned to the intervention for 2016–2017.

Using a causal framework to study achievement outcomes produced by middle schools is complicated by the lack of variation that exists within them. This is exacerbated by the often non-random way in which students transition to middle schools and are assigned to courses in grade 6. Nevertheless, with the support of the staff of the two participating schools, we were able to significantly strengthen the internal validity of our research by randomly assigning students to treatment and control conditions prior to the transition from grade 5 to grade 6.

Theoretical Frameworks

We used new institutionalism and Cuban's (1988) theory of situationally constrained choice to describe the power and persistence of departmentalization and its influence on the norms, beliefs, and practices of teachers and the experiences and perceptions of early adolescents. Thus, implementing Project SUCCESS with fidelity, albeit on a relatively small scale in two middle schools, illustrated that a marginal change in organizational structure can indeed be accomplished and likewise have significant impacts on teacher's beliefs and student outcomes. Moreover, it is important to note that in 2017–2018 Project SUCCESS was expanded to three sections in school 1 and remains in place for a second year in school 2.

Bandura's (1988) social cognitive theory was also used as a complementary theoretical framework to describe how the implementation of Project SUCCESS would

result in fundamental changes in the reciprocal interaction of environmental, behavioral, and cognitive factors in students' experience in grade 6. Ultimately, it was apparent in our findings that students in Project SUCCESS classrooms experienced significantly less performance pressure, developed somewhat stronger growth mindsets, valued their peers more, and made significantly greater academic gains relative to students assigned to ATS.

Research Question One: The School and Classroom Environment

We theorized that spending significantly more time with one teacher and an intact classroom peer group in Project SUCCESS would quickly impact students' perceptions of the classroom and school environment after the transition to middle school. The latent constructs in this variable included performance and mastery goal orientations (Midgley et al. 1995), autonomy (Eccles et al., 1993), classroom discussion (Wang & Holcombe, 2010), and the social support provided by teachers (Urdan & Schoenfelder, 2006). Our analysis of data collected on the SCPM allows for rejection of the H_0 and supports our research hypothesis that students in Project SUCCESS would possess stronger perceptions of the school and classroom environment than students in ATS.

Goal Orientations. Research has shown that important differences exist between elementary and middle schools in the development of student and teacher goal orientations. Midgley and colleagues (1995) found that teachers in elementary schools tend to possess more of a mastery goal orientation for their students while students and teachers in middle schools perceive school culture as more oriented toward performance goals. Furthermore, Bandura (1988) found that performance comparisons tend to negatively impact self-regulation, signified by inconsistent analytic thinking and decreased attainment of learning objectives. To this end, Bandura (1988) states,

“unremitting comparative evaluations carry strong self-efficacy implications” (p. 123). Thus, the kinds of goal orientations fostered by teachers are strongly associated with motivation and student achievement (Bandura, 1988; Wang & Holcombe, 2010)

If goal orientations differ so significantly between elementary and middle schools, this study predicted that departmentalization, arguably the biggest structural difference between the two school types, would be causally linked to the pervasive performance orientation found in middle school classrooms (Midgley et al., 1995). Conversely, Project SUCCESS as a semi self-contained structure was designed to allow teachers to get to know their students better in order to be able to plan and implement instruction that was more focused on individual students’ needs and mastery learning. Thus, random assignment to Project SUCCESS and ATS in two middle schools allowed for a highly unique opportunity to potentially isolate the effects of two different organizational structures on the development of both teacher and student goal orientations.

Analysis of students’ responses on the SCPM strongly suggests that departmentalization is indeed a significant factor in the development of a performance-oriented culture in middle school classrooms. As such, results show that students in Project SUCCESS were significantly less likely than students in ATS to report that their school had a negative performance goal orientation where teachers focus too much on grades and not enough on helping them learn, treat students who get good grades better than other students, and care only about the smart kids ($p = .02$).

Our findings align with decades of research (Eccles et al., 1993; Midgley et al., 1995; Wang & Holcombe, 2010) that has found junior high and middle schools to be organizations composed of rigid and detrimental norms that elevate the importance of

grading over learning. Subsequently, our analysis shows that students' in ATS perceived that teachers indeed cultivated a performance-oriented culture in their classrooms by emphasizing grading and rewarding students who perform at higher levels. In the context of middle-years research, these results are hardly surprising. Nonetheless, they are disconcerting in that they clearly indicate that departmentalization, as widely employed and accepted as it is, plays an influential role in shaping organizational norms and values that prioritize performance at the expense of learning and the alienation of some students who are made to feel less than.

The results of this study also indicate that Project SUCCESS, much like the largely self-contained environment of elementary schools, not only buffers students from a detrimental performance oriented culture, but may also help foster growth mindsets in students. Thus, for promotion of mastery goals, students in Project SUCCESS had marginally stronger perceptions that everyone can get good grades if they do their very best and that trying hard counts a lot ($p = .08$). That is, Project SUCCESS students felt marginally stronger that their academic behavior indeed had significant value in the classroom. Subsequently, it is clear that roughly half way through sixth grade, students in Project SUCCESS possessed somewhat stronger mastery goal orientations while they were much less concerned with arbitrary performance evaluations and academic comparisons.

Based on the design and subsequent results of this study, we contend that a high level of teacher specialization coupled with rigid bell schedules and limited contact time are a developmental mismatch (Eccles et al., 1993) with the burgeoning belief systems and motivational needs of early adolescents. Subsequently, having several more teachers

with limited contact time in ATS resulted in students' feeling less supported academically and significantly more concerned with the academic comparisons facilitated by teachers. In addition, research indicates that students who possess lower self-perceptions of their own capabilities prior to a school transition are more susceptible to the negative effects of having teachers with low self-efficacy after the transition (Bandura, 1993). To this end, Midgley and colleagues (1995) established that lower teacher self-efficacy in middle schools exists alongside an organizational ethos oriented toward performance. While research on teacher self-efficacy was beyond the scope of this study, our findings convincingly show that students in ATS had greater doubts about their teachers' commitment to learning versus grading.

Finally, compared to ATS, students in Project SUCCESS experienced a stronger reciprocal interaction between their classroom environment and positive beliefs about the potential effects of their own agency (Bandura, 1988). These results lead us to believe that Project SUCCESS is a fundamentally more appropriate structure than departmentalization in fostering the development of productive student mindsets in the first year of middle school. In keeping with Midgley et al.'s (1995) findings that elementary teachers possess stronger self-efficacy beliefs, it is plausible that teachers in Project SUCCESS fostered mastery orientations in their students as a result of an uptick in their own perceived self-efficacy. Ultimately, apparent differences in goal orientations between students in Project SUCCESS and ATS likely contributed to significantly different achievement outcomes between the two groups by the conclusion of sixth grade.

Autonomy, Discussion, and Social Support. Unlike our findings on promotion of performance and mastery goals, there were no significant differences between the two

groups' perceptions of teachers' promotion of autonomy, classroom discussion, and the social support they provide to students. Subsequently, our predictions that teachers in Project SUCCESS would provide more opportunities for autonomy, classroom discussion, and social support were not realized. Subsequently, analysis of the data from the SCPM indicate that teaching in Project SUCCESS did not appear to support teachers' use of these specific instructional strategies compared to teachers in ATS. However, it is nonetheless important to note that students in Project SUCCESS reported having marginally stronger mastery goal orientations and significantly less concern about performance pressures despite a lack of significant differences between the two groups' perceptions of the use of student centered instructional strategies. Therefore, it is possible that spending significantly more time with one teacher and peer group outweighs the use of student centered instructional strategies in developing mindsets in students that are less focused on performance and more oriented toward mastery learning. Moreover, it is certainly possible that teachers in each condition utilized instructional strategies that were not a focus of this study.

Research Question Two: School Engagement

School engagement served as the mediating variable in our theory of treatment. That is, we assumed that specific features of the classroom environment would either positively or negatively impact school engagement, which in turn would mediate student achievement outcomes. Overall, we observed no statistically significant differences in each dimension of engagement in the spring of grade 6. As such, our findings do not provide significant support for the H_1 for school engagement this study.

However, our analysis did reveal a significant difference in the social engagement domain between treatment and control on the value students placed on interacting with peers ($p = .01$). It is probable that spending considerably more time with one intact peer group and one teacher contributed to students in Project SUCCESS placing significantly greater value than students in ATS on the role that peers play in their schooling experiences. It is also probable that this cohort effect is associated with students in Project SUCCESS feeling significantly less concerned about unequal treatment by teachers based on grades and their somewhat stronger growth mindsets.

Project SUCCESS clearly serves as a powerful protective factor that mitigates feelings of social alienation during a time of increased self-consciousness. Hence, Project SUCCESS allows students to use peers as an invaluable social resource during a period of the life pathway when personal preferences and identity formation are possibly at their most dynamic and vulnerable (Bandura, 1988). As motivation, self-efficacy, and learning all possess decidedly social elements (Bandura, 1988), then implementing semi self-contained structures when students' are hyper aware of themselves and their environment makes sound educational sense.

It is also plausible that having to navigate shifting peer arrangements in each class period contributes to students in ATS progressively devaluing peers by the conclusion of sixth grade. This decline in the value placed on peers unfortunately aligns with research that shows students in middle schools experience increased feelings of threat (Weiss & Kipnes, 2006) and a marked decrease in the number of friendships after they transition from elementary school (Kingery & Erdley, 2007). Subsequently, it is highly possible that an increased emphasis on grades and unequal treatment by teachers based on

performance may lead many students in departmentalized settings to begin to disassociate themselves from peers in order to protect themselves from unfavorable scrutiny or academic comparisons.

Gutman and Midgley (2000) point out that poor and minority students are particularly vulnerable in the transition to an organizational environment in which social networks are considerably fragmented and weakened. Moreover, when early adolescents experience acute social dislocation in school it may have long lasting consequences for their conduct and achievement (Balfanz et al., 2006; Kingery & Erdley, 2007). Thus, our findings fill a conspicuous gap in the literature by illuminating the role departmentalization plays in lessening the importance students place on interacting with peers. Likewise, it is clear that Project SUCCESS allowed students to establish strong social networks in a more academically equitable environment that ultimately contributed to greater academic achievement.

Research Question Three: Reading Achievement and GPA

The dependent variable in this study was student achievement in sixth grade. In response to our third research question about the potential effects of a significant structural change, results strongly indicate that being in Project SUCCESS indeed benefited students' standardized reading scores and their marking period grades. As such, we are able to reject the H_0 and confirm the H_1 on the measures of MAP-R and grades for the dependent variable.

Reading Achievement. Across all four scales for MAP-R (full-scale, informational, literary, and foundational vocabulary), linear regression showed that students in Project SUCCESS significantly outperformed students in ATS in the spring of

grade 6. Specifically, students in Project SUCCESS had scale scores that were 4 points higher than students in departmentalization on the full-scale MAP-R measure and also significantly higher scores on the three related subscales: informational text (4.1 points higher); literary text (4.8 points higher); and foundational vocabulary (3.4 points higher).

Project SUCCESS produced effects for students who qualify for FARMS similar to those found in Becker's (1987) comprehensive analysis of the impacts of self-contained, semi departmentalized, and highly specialized structures on the achievement of students from various SES backgrounds. That is, both Becker (1987) and this study found that having less specialization in grade 6 in middle schools significantly benefits students whose families qualify for federal assistance. Project SUCCESS greatly reduced (to non-significance) the achievement gap between students who qualify for free- and reduced-meals (FARMS) and students of higher-socio-economic status. Specifically, when we controlled for prior achievement, the gap between FARMS and Non-FARMS students in Project SUCCESS was virtually eliminated and FARMS students in Project SUCCESS actually outperformed non-FARMS students in ATS. Without controlling for prior achievement, Project SUCCESS greatly reduced the achievement gap to -3.15 points (non-significant) compared to a statistically significant gap of -8.8 points between FARMS and non-FARMS students in ATS. Thus, this randomized control trial largely replicated the results Becker (1987) found using quasi-experimental methods three decades ago.

It is highly plausible that the observed effects on students' reading scores are attributable to the extended block that provided them with more time to interact with a variety of texts across different subjects. Teachers often used texts, research, and the

writing process as ways to unify the different curricula in Project SUCCESS. Moreover, with one intact group of students, Project SUCCESS teachers were in a much more tenable position than teachers in ATS to analyze their students' progress on assessments like MAP-R and help them set realistic goals for growth. Certainly, results from the SCPM indicate that students in Project SUCCESS experienced significantly less performance pressure than students in ATS and felt somewhat stronger about the potential effects of their own academic efforts and the interest their teachers had in helping them learn.

Whereas a typical social studies or science teacher in ATS with 125 to 150 students could understandably be excused for not knowing a student's MAP score, Project SUCCESS teachers were directly responsible for their students' literacy development as well their mastery of various curriculum content. Ultimately, accomplishing both was manageable due to having fewer students and more time to spend with them. Conversely, it is exceedingly difficult for teachers in departmentalized settings to allot time for students to actually read in class with competing priorities like checking homework, providing explicit instruction, and assessing learning. In most middle schools, all of these activities usually take place in 40 to 50 minute periods. Finally, these constraints also appear to increase the likelihood that many students in departmentalized classrooms will begin to fall behind academically.

Grades. Balfanz and colleagues (2007) revealed that failing grades are one of several early warning indicators of school disengagement and the failure to graduate from high school. To this end, students in Project SUCCESS earned significantly better grades than students in ATS ($d = .25$). Thus, Project SUCCESS provides a distinct academic

advantage for students in a grade level that research shows is pivotal to successfully navigating the K-12 hierarchy.

The literature on the prevalence of mastery goal focused classrooms in elementary education (Midgley et al., 1995) led us to believe that semi self-contained learning communities in grade 6 would better support students' academic success. The marginally significant impact of Project SUCCESS on students' growth mindsets possibly increased students' sense of control over the effects of their own motivation, which in part contributed to higher levels of academic achievement compared to students in ATS. In addition, the fact that students in Project SUCCESS perceived their classrooms as more equitable spaces to learn combined with the increased value they placed on peer interaction (social engagement) are important social dimensions of learning in Project SUCCESS that we contend resulted in greater academic achievement.

It is plausible that when students are less concerned with performance comparisons and grading they will be more willing to stick with rigorous tasks. For some early adolescents, being wrong in front of peers carries significantly more social risk than giving up on an especially hard assignment. This is particularly true of students who possess performance goal orientations or those who have lower self-efficacy beliefs (Bandura, 1988). Such academic risk-taking is inherently social and thus provides increased opportunities for what Bandura (1988) described as vicarious learning. Therefore, it is highly possible that students' in Project SUCCESS placed more importance on interacting with peers because the orientation of the classroom environment allowed students to learn from one another's motivation, mistakes, and

successes. Ultimately, this constellation of influential psychosocial factors contributed to students in Project SUCCESS outperforming students in ATS.

It is also important to underscore that the higher achievement of students in Project SUCCESS was evident on multiple measures including marking period grades and the MAP-R. Consequently, the observed effects on students' reading growth signifies the need for further research on the integrated curriculum, texts, and literacy strategies that Project SUCCESS teachers employed. Nevertheless, we suspect that the extended block allowed Project SUCCESS teachers' the autonomy to make instructional decisions that benefited students' daily efforts in the classroom. For example, with significantly less pressure imposed by bells, class changes, and stringent grading practices, students were able to spend much more time on tasks. It is plausible that this both increased students' sense of mastery over their work and ultimately resulted in higher quality academic output.

Much of the historical literature on how to best structure the delivery of subject matter in middle schools has focused the discussion on the trade-offs inherent in each structural option for different groups of students (McPartland, 1987). We contend that the results of prior research (Becker, 1987; McPartland, 1987) and our findings serve to finally move the discussion of formal structures beyond departmentalization as the accepted structure in middle years schooling. If anything, the use of departmentalization in the first year after a structural school transition should exist as an option that is utilized only in specific situations where high levels of specialization are potentially required. For example, mathematics, physical education, or elective courses are viable options for specialized instruction. However, our findings support a strong argument that in courses

where continued literacy development is essential to understanding core curriculum content, receiving instruction in an extended block from one teacher benefits most groups of students more than departmentalization.

The Explanatory Power of Complementary Theoretical Frameworks

The problem of disappointing achievement and psychosocial effects in middle schools required a robust theoretical framework that could adequately explain the nature and persistence of departmentalization and its impact on teaching and learning.

Therefore, we selected new institutionalism and social cognitive theory because of the way each focuses on the interaction between the environment, cognition, and behavior.

As such, the organizational environment of middle schools was of particular interest in this study. Specifically, we theorized that teachers' and students' cognition and behavior intersect in departmentalized classrooms in ways that produce control oriented instruction and unfavorable student achievement and psychosocial effects.

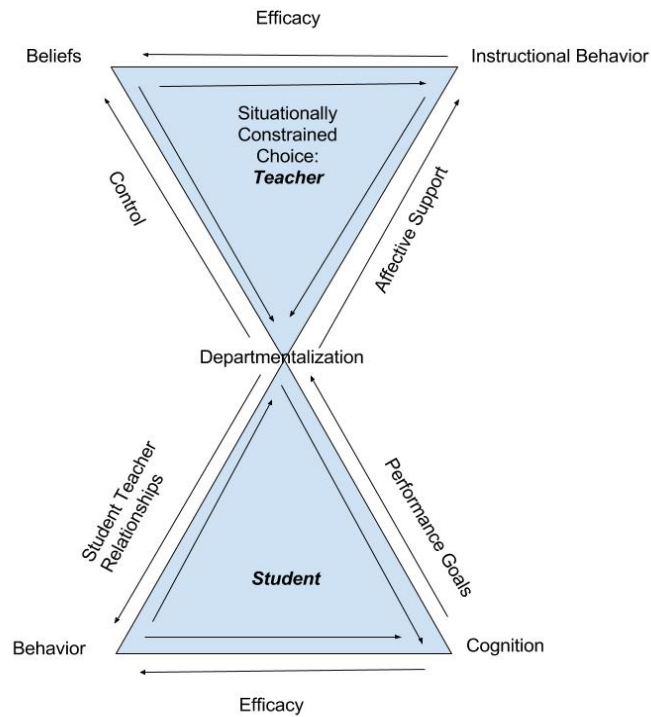


Figure 8. The intersection of teachers' and students' cognition and behavior in departmentalized classrooms.

Figure 8 represents how departmentalization is the primary structure in which teachers' and students' cognitive processes and behaviors intersect in middle school. That is, we theorized that departmentalization naturally limited teachers' development of student-centered beliefs and instructional practices. For example, Figure 8 illustrates how teachers' beliefs about the need to control and manage students in departmentalized classrooms influences students' development of cognized goals. Thus, we predicted that replacing departmentalization with Project SUCCESS would result in teachers' use of student-centered instructional strategies and that students would possess significantly stronger perceptions of the classroom environment and increased engagement and achievement.

New Institutionalism

A basic theoretical concept of this study was that organizational structures persist despite evidence that suggests that the acceptance and use of some structures is not inherently rational (Meyer & Rowan, 1977). Subsequently, we identified departmentalization as one such organizational structure in schools that has possessed a historical rationale for use without necessarily existing as a rational way to improve student outcomes in junior high and middle schools (Lee & Smith, 1993).

Without a doubt, departmentalization has served as a highly accepted and durable method for structuring teaching and learning in middle-years schools. Moreover, departmentalization has withstood decades of research and policy proposals pointing to its role in bureaucratizing secondary schools and its association with declining psychosocial and academic outcomes for students (Lee & Smith, 1993). Therefore, a basic goal of this study was to observe whether semi self-contained learning communities, a relatively radical concept in secondary education, could be successfully implemented as an alternative structure alongside the status quo, departmentalization.

We believe that the implementation of Project SUCCESS at two fully departmentalized middle schools shows that this goal was successfully attained. First, both schools developed instructional schedules for Project SUCCESS that were a significant departure from the conventional seven period and A/B block alternating day schedules that structured departmentalization in each school. In addition, two cohorts of students in each school spent the entire school year receiving instruction in four subjects from one teacher.

Likewise, four middle school teachers adopted dramatically different roles and responsibilities as classrooms generalists charged with delivering interdisciplinary instruction. In the process, they developed new professional norms that were animated by a focus on students instead of a focus on content (McPartland, 1987). Lastly, parents of students in Project SUCCESS at both schools were overwhelmingly accepting of the program. Thus, if departmentalization in part represents the powerful myths in society of how a middle-years school should be structured, parents were nevertheless willing to accept that the first year of middle school would be significantly different for their children.

Situationally Constrained Choice

Teachers in Project SUCCESS were responsible for planning and implementing instruction in three core content classes plus digital literacy. For a teacher to welcome this diverse course load in middle school upends the professional norms in secondary education that are explicitly oriented toward limiting the number of course preps that teachers have in departmentalized settings. However, this study was delimited to the extent that it largely focused on the perceptions and outcomes of students and not on teachers' perceptions of their professional responsibilities. Had it been, it would have been important to gauge the effects produced by the different teaching loads included in this study. Nevertheless, based on our informal interactions with Project SUCCESS teachers during site visits, we perceive that they embraced the trade-off of teaching more subjects for the opportunity to spend significantly more time with only one group of students.

While the explanatory power of situationally constrained choice was somewhat mixed, it nonetheless shed light on several important findings in our study. Cuban (1988) highlights that elementary teachers in self-contained classrooms have a slim but nonetheless larger margin than secondary school teachers to innovate and focus on student learning needs. Further, we posited that Midgley and colleagues (1995) findings on the differences in goal orientations between elementary and middle school teachers in part signified Cuban's (1988) discussion of the role organizational structure plays in shaping teacher beliefs and practice. As such, we predicted that semi self-contained classrooms in grade 6 would impose fewer constraints on teachers and thus produce patterns of pedagogy that were more favorable for students' psychosocial development and achievement.

Our results indeed show that a change in structure produced significant differences in the way students in Project SUCCESS and ATS perceived the goal orientations of their teachers. Thus, we extended Midgley et al.'s (1995) research by clearly showing that departmentalization in middle schools has a negative influence on students' perceptions of their teachers' beliefs about learning and grading. Moreover, this study produced a pattern of findings that indicate that students in semi self-contained classrooms perceive their teachers as somewhat more mastery focused, committed to their learning, and less concerned with academic comparisons. Subsequently, we contend that spending more time with fewer students allows teachers to know the needs of their students and more actively support them in their learning. Students in Project SUCCESS clearly felt this was based on the way they perceived less of a performance orientation in their classrooms compared to students in ATS.

Project SUCCESS produced moderate to large effects on teachers' perceptions of their use of student-centered instructional practices. Several of these impacts support our assumption that Project SUCCESS teachers would experience fewer constraints on their pedagogy than teachers in ATS. Specifically, results from the TCEM showed that Project SUCCESS produced moderate to large effects on teachers' encouragement of student input ($d = .97$), peer cooperation and interaction ($d = .56$), and social support ($d = .38$). Conversely, our results showed that ATS teachers placed much more emphasis on grading homework ($d = -.86$), allowing students to work on their own for extended periods of time ($d = 1.06$), and using the same textbooks and materials for most students in their classes ($d = -.36$)

It appears that teaching in Project SUCCESS enhanced teachers' willingness to ask students' what they wanted to learn about while also allowing them to contribute ideas for how they should be assessed on what they learned. It is plausible that this pedagogical approach had some influence on Project SUCCESS students' perceptions that their teachers placed more of an emphasis on helping them learn than on grading them. Further, it is also possible that Project SUCCESS students' stronger beliefs about the effects of their own agency was a result of the latitude teachers gave them to provide input on how learning would be assessed in their classrooms.

The constraints departmentalization places upon teacher practice were also evident in the results of the TCEM. For example, teachers in ATS tended to use the same instructional materials for most students, allowed students more time to work on their own, and were highly concerned with grading homework. Specifically, one could interpret ATS teachers' willingness to allow students to work independently for a long

period of time as a form of benign neglect produced by the constraints placed on teachers' time and ability to get to know many students across numerous classes. In addition, an emphasis on grading homework is indeed a way for departmentalized teachers to exert some sort of control over the academic effort of students in an otherwise loosely coupled environment.

Unlike teachers in ATS, Project SUCCESS teachers appear to be less inclined to allow students to work independently for extended periods of time. Subsequently, Project SUCCESS teachers might in fact limit this form of autonomy as a function of having significantly more contact time with their students. Ultimately, it is interesting to contrast this impact with the effects of Project SUCCESS on teachers' grading practices. That is, Project SUCCESS profoundly reduced the emphasis teachers place on grading homework. Therefore, it is plausible that teachers' emphasis on grading homework in ATS is associated with students' significantly stronger perceptions that teachers care too much about grading versus learning and treat students who get good grades better.

Finally, the effects of Project SUCCESS on teacher practice were possibly the most profound in the areas of classroom life that are inherently social. Significantly more contact time with one group of students resulted in Project SUCCESS teachers allowing students to interact with one another more. Moreover, Project SUCCESS had a moderate effect on teachers' readiness to assist students with social and personal problems. These social dimensions of classroom life in Project SUCCESS are potentially associated with the value students placed on interacting with peers (social engagement). Likewise, Project SUCCESS students' somewhat stronger perceptions that their teachers emphasized mastery goals possibly reflects teachers' willingness to allow students to

provide ideas about what they wanted to learn and informally talk with one another more in the classroom.

In considering the results from both the SCPM and TCPM, we believe there is a significant amount of evidence to support our use of situationally constrained choice to explain the role formal structures plays in shaping teachers' beliefs and pedagogy. The considerable effects of Project SUCCESS on teacher perceptions suggest that changing organizational structure is indeed a powerful lever to shift pedagogy away from the impersonal norms of performance, stringent grading, and social isolation in classrooms.

Indeed, that Project SUCCESS produced an effect of nearly one standard deviation on teachers' willingness to use students' input in the development of quizzes and tests might be considered fairly radical in a secondary school culture known for arbitrary performance standards and academic comparisons (Midgley et al., 1995). Importantly, semi self-contained learning communities seemed to heighten teachers' awareness of the central role students' must play in their development and implementation of pedagogy. As Cuban posits in his discussion of instructional innovation, "Within the organizational structure of the elementary school, where heavy external pressures were less evident, larger blocks of time were available, and skills were stressed more than content, pedagogical practices could flow more easily from these ideas." (p. 251).

Social Cognitive Theory

Triadic reciprocal determinism served as a powerful framework to help explain the interaction of environmental, cognitive, and behavioral determinants that shaped students' sense of self-efficacy, agency, and academic achievement in Project SUCCESS.

As Bandura (1993) asserts, self-conceptions of ability that are oriented toward growth rather than performance, drive students to form goals and engage in activities that are focused on self-improvement. A growth mindset requires students to develop and apply their own internal standards in judging the effects of their own motivation and effort. Further, cognized mastery goals naturally demand that students' engage in deeper levels of personal reflection on their own thinking and behavior.

As we expected, students in Project SUCCESS developed somewhat stronger growth mindsets and engaged in pro social behaviors that resulted in increased academic achievement. That is, the values and behaviors of teachers in Project SUCCESS (the environment) fostered marginally stronger mastery goal orientations in students (cognition). In turn, students' beliefs in the positive effects of their own agency reciprocally impacted the classroom environment by creating a culture in which students in Project SUCCESS recognized the potential abilities of their peers and placed significantly greater value on interacting with one another (social engagement). Alas, we did not directly assess the reciprocal effects on teacher practice that students' had through their own cognized mastery goals and self-efficacy beliefs. Thus, in future research it will be important to examine how the positive academic behavior of early adolescents in Project SUCCESS influences teachers' beliefs about them and their own teaching.

As predicted, our results showed the reciprocal causation of several determinants in ATS that we contend produced lower levels of student achievement compared to Project SUCCESS. Our results indicate that the environment in departmentalized classrooms was strongly influenced by the performance orientations of teachers.

Subsequently, students' developed beliefs and expectations that teachers' valued grades above learning and treated high achieving students in more favorable ways.

Bandura (1989) posits that these kinds of arbitrary performance standards and comparisons have especially deleterious impacts on individuals who already possess fixed conceptions of their cognitive abilities. In effect, these students will actively try to shield themselves from external evaluations of their abilities that have the potential to threaten positive perceptions of their competence (Bandura, 1993). Subsequently, students' academic self-conceptions and resulting social status in turn have an impact on the classroom environment in the ways they are perceived and treated by peers and teachers.

This form of reciprocal causation between environment and cognition was signified by how students in ATS felt significantly less inclined to interact with peers and perceived that teachers treated students who got good grades better than other students. Further, teachers in ATS reported that they checked in less frequently with students and played a smaller role in helping students with social and personal issues. As a result, it would appear that students in ATS perceived the social networks within their classrooms to be significantly weaker than those in Project SUCCESS.

Middle school classrooms should ideally foster the development of growth mindsets in students exemplified by potent self-efficacy beliefs, high levels of motivation, and durable social webbing. In this study we made purposeful modifications to the school environment and observed how these changes interacted with students' cognition and behavior. Bandura (1989) asserts that individuals "are both the products and producers of their environment" (p. 4). This bidirectional process was realized in the

way that two different conditions elicited varying beliefs and behaviors from students. In the case of Project SUCCESS, students' were much less concerned that teachers treat students who get good grades better than other students, pay too much attention to grades and not enough to helping students learn, and care only about the smart kids. Furthermore, students in Project SUCCESS placed significantly greater value on interacting with their peers and achieved at significantly higher levels. Thus, the environment in Project SUCCESS appeared to be animated by increased academic equity, equality, and social interaction.

Implications for Middle Years Schooling

Some critics suggest that new institutionalism does not fully explain how institutional change can indeed occur. By nature, new institutional theory has been concerned with explaining the legitimacy, stability, and accretion of institutional structures. As Meyer and Rowan (1977) observe, "institutional isomorphism promotes the success and survival of organizations" (p. 349). In essence, new institutionalism helps explain why organizations are structured in the way that they are, not how they might be structured entirely differently.

When institutions do change, Meyer and Rowan (1977) contend that it is signified by the need of organizations to incorporate structures that reflect powerful myths that exist in the environments surrounding them. Organizations within an institutional environment engage in this process to reinforce their legitimacy, protect themselves from external threats, and to leverage resources and support for survival (Meyer & Rowan, 1977). Certainly, research literature plays an important role in sparking change or

substantiating the need for it by contributing to these powerful myths that eventually must be reflected in new structural arrangements.

Take for example the call over the last decade to replace middle schools with K-8 schools. Research by Schwerdt and West (2011) and Rockoff and Lockwood (2010) have utilized large data sets and econometric analysis to argue for replacing middle schools with K-8 schools. These studies use economic concepts like efficiency and value that garner the attention of policy makers and contribute to the burgeoning myth that, like junior high schools before them, middle schools are increasingly failing the students they serve. However, we suggest that the issue at hand is not the survival of middle schools, but more specifically, the legitimacy and continuity of public schooling. Thus, as the myth of middle school failure continues to grow, reinforced by research and public opinion, policy makers and school systems will respond in kind to thwart this apparent threat to the legitimacy of current institutional arrangements.

In the context of school organizations, Tyack and Cuban (1995) explain that attempts at enacting significant change often die on the vine as a result of shifting political winds, goal displacement, and the cooptation of the design and implementation of new initiatives by schools. Yet, Tyack and Cuban (1995) also posit that the most compelling source of power to change school organizations originates with teachers and schools themselves. This is where we situate our discussion of how Project SUCCESS could indeed change teaching and learning in middle schools. In our view it begins with a marginal but nonetheless impactful innovation that is increasingly adopted on account of teachers' growing faith that they can indeed change their schools for the better.

Innovation at the Margins

Project SUCCESS targets change in one segment of the K-12 organizational field: sixth grade. The structures, norms, and practices that exist at the terminal grades in schools often appear to possess a mixture of building blocks assembled from different organizational environments. For example, eighth grade might include high school credit courses and ninth grade will have academies to create smaller cohorts of students. Or consider the historical evolution of junior high schools, outdoor education, and kindergarten (Tyack & Cuban, 1995). Public K-12 education developed or adopted these structures and practices because they were thought to either address the unique needs of a particular developmental phase of life or they arose out of institutional ambiguity over how to address a specific educational problem (Tyack & Cuban, 1995).

Cuban (1988) suggests that there are two camps of school reform. One includes first order change that is incremental, targets specific processes in the technical core of teaching and learning, and is oriented toward the needs or interests of the average student. The other camp involves change that concerns a complete reimagining of the educational process in order to meet the needs of students outside of the mainstream (Crowson et al., 1995). With this in mind, Project SUCCESS could be perceived as belonging in the first camp, the one in which everything in education seems to change but nonetheless stays the same.

However, the results of this study convince us that an organizational change like Project SUCCESS is uniquely designed to exploit the educational ambiguity that exists at the margin between childhood and early adolescence. As such, Crozier and Friedberg's (1980) commentary on marginal liberty provides a framework for viewing bottom-up

reform as organizational actors' use of opportunities, strategies, and the exploitation of zones of organizational uncertainty to achieve strategic objectives. Constraints are naturally placed on the "*active*" behavior of school-based personnel by reductive organizational practices aimed at maintaining institutional legitimacy rather than promoting technical rationality (Crozier & Friedberg, 1980, p. 25; Meyer & Scott, 1995). Yet, in cases like outdoor education, the development and adoption of innovations proceeds from the inside out, with the ever-increasing conversion of teachers and supporters resulting in policy that institutionalizes the program.

Finally, the significant psychosocial and academic benefits we observed in Project SUCCESS should help to convince system leaders and policy makers that structural change is indeed an impactful way to transform the technical core of teaching and learning in middle school. That is, we observed that Project SUCCESS ultimately changed the way students perceived the beliefs and behavior of their teachers. In response, students changed the nature of the classroom environment through the formulation of specific beliefs and the selection of positive academic and social behaviors.

A Conversion of Faith

In order to make this change, the teachers in this study had to relinquish their faith in a school structure that was successfully reproduced for decades. New institutionalism would suggest that this deep faith is borne of the continuity and stability that departmentalization provides. Institutional arrangements like content specialization, course loads, and departmental subcultures provide teachers with the norms and belief systems that dictate conventional organizational behavior. That is, institutions constrain

thinking to such a point that actors cannot conceive of alternative ways of thinking and acting. In the case of departmentalization, the institutional environment creates the criteria by which teachers get to select their preferences (DiMaggio & Powell, 1991). For example, a prospective teacher might ask: do I want to be a social studies teacher and what content and grade level will I be most comfortable teaching? In other words, it ultimately allows educators to know what to expect from the organizational environment in which they work.

Conversely, teachers in Project SUCCESS had to work together to develop structures and processes for teaching four subjects to one intact group of students. More importantly, they were forced to develop new ways of understanding their work as educators. We contend that the uncertainty involved in this endeavor, a leap of faith if you will, coupled with increased autonomy moved teachers significantly closer to the core of teaching and learning. A leap of faith because, according to the theory of new institutionalism, teachers may not be rewarded by the institution for changing business-as-usual structures and procedures for middle school students.

Innovating from the inside out in schools largely avoids the policy talk and resulting goal displacement that often arise in top-down program initiatives (Tyack & Cuban, 1995). This form of innovation develops on the “shop floor,” from teachers managing the uncertainties of the technical core of teaching and learning (Meyer & Rowan, 2006). This adaptive process for teachers was in part technical in nature. However, our results confirm that it was in larger part cognitive and beliefs-based. We argue that this cognitive shift occurred on account of radically changing formal structure, which in effect moved teachers closer to students and further away from the norms and

beliefs associated with departmentalization. As a result, teachers in Project SUCCESS experienced a conversion to new ways of thinking and behaving in the classroom.

Our results convince us that any concerted attempt at middle school reform will always involve educators experiencing a career risk (Brown & Crownwall, 2000) by converting to a new faith that entails a significant change in beliefs and norms (Crowson et al., 1995). In addition, we strongly believe that this conversion will be most powerful and thus have the most impact when it develops within organizations, originating with teachers and principals.

It is also understood here that all teachers deserve and require high quality, personalized professional development. However, the results of this study convince us that organizational structures impose such constraints on teachers' beliefs and behaviors that the effects of professional learning may not be fully realized. Therefore, we contend that reform will necessarily always include an inside-out struggle to change structure in order to change norms and beliefs. As Crowson et al. (1995) posit, "Once the logic of instruction takes hold, it challenges the logic of organizations (p. 136).

Project SUCCESS and Interdisciplinary Teams

The results of this study show that Project SUCCESS in grade 6 is a viable option for bridging the organizational divide between largely self-contained elementary school classrooms and departmentalized middle schools. Thirty years ago, Becker (1987) showed that most student groups achieve at higher levels when they have fewer teachers. Further, he established that students who have grade 6 in elementary schools significantly outperform students who have grade 6 in middle schools (Becker, 1987).

Our findings support his conclusions while revealing important school and psychosocial factors that underlie the differences in achievement that are associated with structure, namely goal orientations and various elements of school engagement. In light of this body of evidence, we urge teachers and principals to explore ways to change structure in grade 6 in order to create smaller learning communities that elevate the psychosocial dimensions of teaching and learning.

It is also our recommendation that schools explore variations of interdisciplinary team teaching for seventh and eighth grades as well. That is, we challenge middle school educators to design and implement a range of organizational structures that are differentiated to the extent that they match the psychosocial needs of students in each grade level. Project SUCCESS showed conclusively that in a structure that reduces disparate peer arrangements, students in grade 6 increasingly place more value on interacting with peers as they transition into early adolescence. Likewise, Wallace (2007) showed that students in two-teacher teams experience a greater sense of bonding to their peers, teachers, and school than students in four-teacher teams. Therefore, it is both conceivable and appropriate for schools to implement Project SUCCESS in grade 6, two-teacher teams in grade 7, and four-teacher teams in grade 8. Structural differentiation would subsequently place the greatest emphasis on psychosocial support in sixth grade and increasingly emphasize content specialization as students prepare for high school.

Finally, it is important that schools consider how to strike a balance between teachers' required class loads and the demands of teaching Project SUCCESS. In this study, teachers in Project SUCCESS taught four periods, with an additional period off for collaborative planning, compared to the typical five period load of teachers in ATS. If

schools implement Project SUCCESS on a limited scale alongside ATS in grade 6, it is reasonable to expect that Project SUCCESS teachers would be responsible for teaching a fifth class (period) to an additional group of students.

However, for schools that implement Project SUCCESS as the status quo in grade 6, our recommendation would be to create a distinct six-period schedule. This reduction in classes from seven to six would naturally produce longer periods while creating a proportional relationship between the teaching loads of grade 6 and grade 7/8 teachers. That is, grade 6 teachers would teach four of six periods and grade 7/8 teachers would teach five of seven periods. The most obvious drawback to this approach is that students would lose an elective course in the first year of middle school. Nevertheless, it is feasible that schools could provide options for students to take courses like foreign language, band, and chorus in the form of clubs or activities before or after school.

A Question of Equity

Project SUCCESS was largely conceived as a way to positively impact the educational outcomes of African American and Hispanic students, those who live in poverty, and students who struggle in the lower bounds of the achievement hierarchy. There is extensive literature that shows that structural school transitions (Rockoff & Lockwood, 2010) and the environment of middle schools produces especially detrimental effects for these children (Becker, 1987; Balfanz et al., 2006). Subsequently, the design of Project SUCCESS was aimed at strengthening the social fabric in sixth grade classrooms by replacing highly bureaucratic structures with a model that reduced disparate peer arrangements, class transitions, and the number of teachers and different sets of expectations that students had to navigate. In essence, we assumed Project

SUCCESS would increase equity by providing students with access to stable peer arrangements and the support of teachers who would have the time to better meet their psychosocial and academic needs.

Notwithstanding the significant gaps in reading performance our analysis revealed, it is clear that Project SUCCESS had a profoundly positive impact on the perceptions, grades, and reading achievement of students from lower SES backgrounds. Our findings indicate that changing formal organizational structure is indeed a powerful equity strategy for schools to consider in their efforts to improve the equality of student outcomes. As a result, we contend that restructuring teaching and learning must be a priority for middle school educators in light of extensive research that shows how academic failure in grade 6 reduces high school graduation rates for poor and minority students (Balfanz et al., 2006; Rockoff & Lockwood, 2010). In other words, we view this kind of reform as an effort to progressively secure social justice for students by challenging the hegemony of conventional organizational structures that have helped perpetuate issues of equity and equality for decades.

Limitations

There were a number of limitations inherent in the methodology and implementation of this study. First, we employed a strictly quantitative research design that precluded gathering varied qualitative data during the implementation of the intervention. For example, conducting classroom observations, interviews, or focus groups with students and teachers would have strengthened our analysis of situationally constrained choice as a viable explanation for how formal institutional structures shape the norms, beliefs, and practices of teachers and students (Cuban, 1988). As such,

differences in student goal orientations between ATS and Project SUCCESS serves as powerful evidence that the two conditions produced contrasting student perceptions of the beliefs and behavior of teachers. Thus, observing teachers in both settings might have increased the power of our study to more fully explain how the difference in structures influenced teaching and learning.

Both schools that implemented Project SUCCESS had relatively high FARMS rates and enrollments that consisted of mostly Hispanic and African American students. Both schools also had medium sized to large enrollments. Subsequently, Project SUCCESS has not yet been implemented in schools with majority Caucasian or Asian American populations or in schools where most students come from high SES backgrounds. As a result, it is plausible that the generalizability of our findings is somewhat limited due to the specific characteristics of the participants and schools included in this study.

Becker (1987) revealed that students from higher SES backgrounds performed somewhat better when they had sixth grade in middle schools versus sixth grade in elementary schools. Moreover, Becker (1987) showed that self-contained instruction produced no notable achievement effects for higher SES students. Nonetheless, a significant amount of research (Alspaugh, 1998; Eccles et al., 1993; Schwerdt & West, 2011) has continued to show disappointing psychosocial and achievement outcomes in middle schools across a variety of regions and student backgrounds. We posit that it will be important in the future to conduct research on the effects produced by alternative structures like Project SUCCESS across of variety of schools and student populations.

In secondary schools, intense academic interventions often become classes in students' schedules that are by nature stratified by need and academic readiness. Acclaimed superintendent Dr. Jerry Weast (2009) summed up this phenomenon by stating, "Differentiation in secondary education happens in the counseling office." As such, students with disabilities who were identified as needing more support than the schedule for Project SUCCESS allowed were not included in this study. Likewise, second-language learners who required more extensive ESOL support were also not included. Therefore, the results of this study are somewhat limited in that they do not reflect the impacts of school structure on two student groups who are potentially more at-risk academically.

Conversely, elementary schools often employ intervention models that require specialist teachers to plug-in to the classroom environment. This approach fosters a sense of community and sustains the heterogeneity of student characteristics in elementary classrooms. While we believe that the structure of Project SUCCESS would effectively support this approach, school schedules and staff resources did not allow it. As such, this study was limited in that it did not gauge the compatibility of Project SUCCESS with a wide-range of educational interventions.

It is certainly possible that some set of unobserved characteristics of Project SUCCESS teachers influenced the results of this study. That is, teachers were not randomly assigned to treatment and control and thus we cannot be sure that characteristics like years of experience, expertise in reading instruction, or teaching background did not contribute to the observed effects of better grades, higher reading scores, and more positive psychosocial outcomes. Likewise, teachers in Project

SUCCESS understood that they were participating in the implementation of an innovative school structure in an experimental study. Yet, on average teachers in ATS had 9.2 years of teaching experience compared to 7.8 years for Project SUCCESS teachers. Further, only one teacher in Project SUCCESS had extensive experience at the elementary school level.

Finally, the administration of the post SEI was delayed in one of the two schools. Thus, the survey was administered with considerable haste during the last week of the school year when teaching and learning had largely begun to wane. This is obviously not the ideal time to measure students' school engagement in either condition. Nonetheless, it is hard to gauge how this unfortunate timing influenced students' responses on the survey.

Conclusion

This study occurred in the midst of a new era of research on the impacts of structural school transitions and different school configurations on the psychosocial development and academic performance of early adolescents. In comparing differences in achievement outcomes between K-8 and 6-8 middle schools, several of these important studies (Rockoff & Lockwood, 2010; Schwartz et al., 2011; Schwerdt & West, 2011) conclude that middle schools are inefficient, produce disappointing achievement outcomes, and are unreliable in securing a trajectory toward high school graduation for many students (Bedard & Do, 2005).

Our research took a decidedly different approach to examining middle school effects. We sought to move beyond discussion of the effects of different school configurations by focusing more specifically on how various formal organizational

structures in middle schools influence teaching and learning. Subsequently, a randomized control trial allowed us to compare the impacts of semi self-contained learning communities and departmentalization on students' perceptions of the classroom environment, engagement, and academic achievement.

The outcomes produced by Project SUCCESS convince us that restructuring the organizational environment in middle schools, particularly in sixth grade, can offset negative transition effects and positively impact students' sense of academic self-efficacy, the effects of their own agency, and the value they place on interacting with peers. This pattern of results completes a broader picture of the significant differences in cognized goal types produced by different organizational structures.

That is, our findings show that students in semi self-contained classrooms were significantly less concerned than students in departmentalized settings that teachers pay too much attention to grades and not enough attention to helping them learn. The reduced emphasis on performance goals in Project SUCCESS was further realized in the comparatively positive way students felt about the effects of their own effort and the diminished concern they showed about academic comparisons to peers. We know of no other studies that have established these links between goal types and organizational structures in middle schools. Thus, we think that middle school educators can confidently use our findings to evaluate how to organize teaching and learning in order to enhance the psychosocial dimensions of the classroom environment.

The literature on school engagement indicates that it is an important driver of academic achievement in middle schools. While we found no statistically significant differences between the two groups' cognitive, behavioral, and emotional engagement,

students in Project SUCCESS did show particular signs of being significantly more socially engaged by the conclusion of sixth grade. As such, it is plausible that the greater value Project SUCCESS students' placed on peers was linked to the way in which the classroom environment (teachers and peers) facilitated the development of growth mindsets and a culture of academic and social support.

Likewise, these findings suggest that students in Project SUCCESS showed significantly less vulnerability to the psychosocial alienation that the middle school environment produces. That is, students in Project SUCCESS were more invested in their learning and the social dimensions of school throughout sixth grade. Ultimately, less emphasis on performance, somewhat stronger growth mindsets, and students' social engagement contributed to significantly higher levels of academic achievement.

Project SUCCESS produced a highly statistically significant treatment effect on students' readiness to comprehend texts. MAP-R observations spanning the two-year pre and post transition period were included in our analysis. As such, the treatment effect we detected is especially critical in that it shows that by the end of sixth grade students in Project SUCCESS were significantly better equipped to handle the complexities of texts used in subjects like social studies, science, and mathematics. Moreover, Project SUCCESS produced moderate to large effects in reading on the MAP-R for those students who qualified for FARMS. Similarly, Project SUCCESS had a profoundly positive impact on these students' grades throughout sixth grade.

Proponents of the middle school model have for decades espoused the use of flexible schedules, interdisciplinary curriculum, and structures that support the development of students' social bonds with one another, their teachers, and school. New

institutionalism helps explain that the uneven implementation of these structures and practices in middle schools is the result of a form of institutional path dependency that constrains innovation and change within organizations. As such, a primary goal of this study was to conduct an empirical investigation of the extent to which departmentalization exists as a rational way to shape the norms, beliefs, and behaviors of teachers in middle schools.

The results of our randomized control trial make a convincing case that Project SUCCESS is indeed a significantly more rational way to organize students for instruction after the transition from elementary school. In contrast, departmentalization exists as a conventional structure that is legitimated through the ways it reflects rationalized myths about education and makes past, present, and future organizational behavior understandable in the larger institutional environment. In allocating positions, authoritative knowledge, and status, departmentalization continues to be an influential rationale for the organization of middle schools and in turn limits the development of alternative organizational structures.

Meyer (1977) asserts, “The most powerful socializing property of a school is its external institutional authority, derived from the rules of educational allocation, rather than its network of socializing experiences” (p. 61). As such, research shows that the institutional authority and chartering of middle schools is historically weak relative to elementary and high schools. Therefore, we argue that this apparent lack of organizational efficacy is a result of the ambiguity inherent in the conception of middle schools and the tenuous structures and socialization processes within them. Subsequently, the impacts of Project SUCCESS convince us that changing formal structure in order to

enhance the psychosocial dimensions of the school environment can have a profound impact on students' mindsets, engagement, and achievement. In doing so, educators would take an important step toward improving the educational fortunes of many early adolescents while helping to dispel the myth that middle schools cannot meet their needs.

Finally, morals play a central role in the progressive conversion of faith we have suggested is necessary to change middle schools. Organizational structures in education naturally produce morals that direct and limit the behavior of educators and the educated alike. These guides for acceptable behavior have for too long constrained middle school educators' choices while providing no incentive to innovate on behalf of students. In other words, the morality of maintaining the status quo has historically superseded our moral obligation to enact what are seemingly risky and certainly uncomfortable changes in schools.

Yet, the results of this study and the extensive literature on middle effects convince us that the morals of tradition and legitimacy do not bestow on middle school educators the right to remain risk-averse and content with the way things have always been done. Thus, with millions of children about to enter early adolescence, public educators should not have the right to allow them to lose ground while the same warmed-over debates on reform assume center stage again. In the words of Dewey (1916), "A narrow and moralistic view of morals is responsible for the failure to recognize that all the aims and values which are desirable in education are themselves moral (p. 359).

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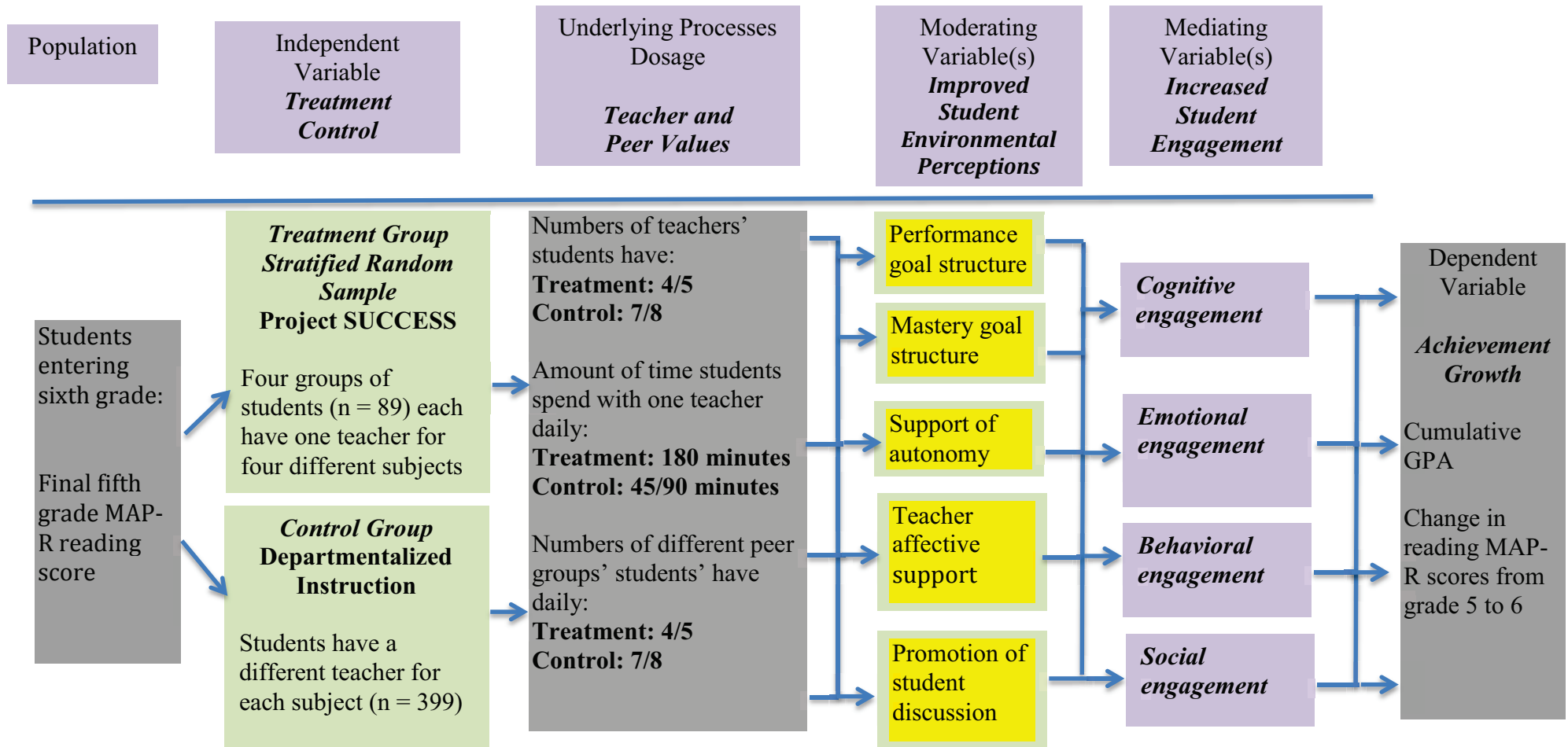
Appendix A

Data Collection Matrix: Evaluating the Implementation of Project SUCCESS

Fidelity Indicator	Data Sources	Data Collection Tool(s)	Frequency	Responsibility
Student schedules: each student has one teacher for English, digital literacy, science, and social studies	Scheduler software	Individual student schedules	Weekly	Sixth grade counselor
		Scheduler tallies for each treatment group	Monthly	Sixth grade counselor Master scheduler
Teacher schedules: concurrent blocks and one daily common planning period	Master schedule development meetings	Meeting Agenda	June 2016	Master scheduler
		Master schedule board Scheduler software		Project SUCCESS liaisons Project SUCCESS teachers
Each teacher instructs one group of students in English, digital literacy, science and social studies	Common planning time	Nine-week plans for interdisciplinary enduring understandings & essential questions	Weekly	Project SUCCESS teachers
Dimensions of the classroom environment: mastery goals, autonomy, interaction, affective support	Teacher Survey	Teacher Classroom Environment Measure (TCEM)	April 2017	Project SUCCESS liaisons
	Student Survey	Student Classroom Perception Measure (SCPM)	February 2017	Project SUCCESS liaisons

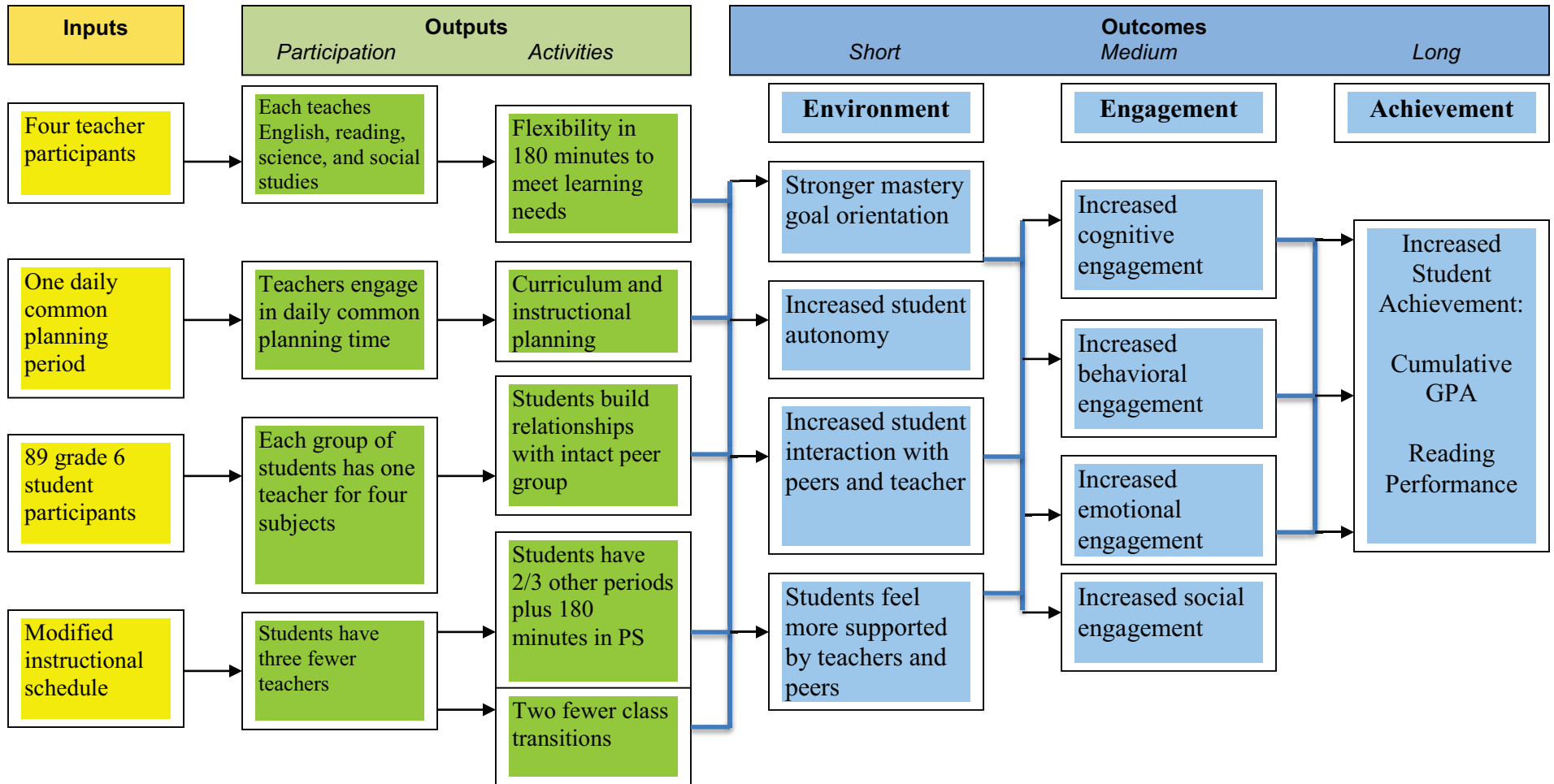
Appendix B

Causal Model for Restructuring Teaching and Learning in Grade 6



Appendix C

Logic Model for Project SUCCESS: Reorganizing Instruction in Grade 6



Appendix D

Project SUCCESS Nine-Week Plan Cover Page

Project SUCCESS Quarter 1 Overarching Understanding

Our individual character and collective leadership can positively impact our learning community.

Science:

Matter and its interactions; atoms/molecules, the principles of energy (conservation, transfer, potential/kinetic)

World Studies:

Patterns (in time, of settlement); Generalizations and inferences

English:

Character development, creating effective arguments, theme/central idea development

Digital Literacy:

The Modified Engineering Design and Inquiry Process

(Identifying topics, narrowing topics, defining “driving” question, brainstorming specifics to research, Cornell notes, using appropriate resources to research)

Culminating Connection Task:

Identify and define a real world issue and follow the engineering design and inquiry process to create and implement solutions.

PS Overarching Understandings At A Glance

Quarter 1	Quarter 2	Quarter 3	Quarter 4
Our individual character and collective leadership can positively impact our learning community.	Interdependent relationships are essential to successfully function in our school community.	How we address challenges can make a difference in our local community.	The choices we make as individuals, communities and societies impact our world.

	Essential Questions	Science	English	World Studies	Digital Literacy
Weeks 1, 2 & 3	How do patterns impact our understanding?	<p>Science Introduction</p> <p>Matter and its organization</p> <p>Properties of Pure Substances</p> <p>States of Matter</p>	<p>Analyze how an author develops a character in a text.</p> <p>Compare how a print and non-print text express common theme or central idea.</p> <p>Nonprint/visual: Photograph/art/ landing page of website/</p> <p>Pick one of the character traits – what photograph would go with your character</p> <p>Post a photo – write this character’s story</p>	<p>Patterns of Social Studies: Patterns through artifacts.</p> <p>Principles of geography and economics</p> <p>Patterns of Social Studies: Human settlements -> Bodies of water / trade centers.</p> <p>Time Travel Tuesdays! Mesopotamia</p>	<p>How to identify and narrow a topic for research.</p> <p>Defining the “driving” question in your research.</p> <p>Brainstorming specific to research (process, question, product).</p> <p>Cornell notes/ISN</p> <p>Using appropriate resources to research (evaluating/analyzing sources).</p>

Appendix E

Outcome Measures: Creation of Scales, Their Reliabilities and Descriptive Statistics

The tables in Chapter 5 compare perceptions of school environment and sixth grade student outcomes between Project Success and ATS (the business-as-usual control condition). In creating scales, we first checked to make sure that the items intended to measure a construct formed a scale with acceptable internal consistency and reliability in this sample and that each item contributed positively to the scale's reliability. As described below, if an item(s) did not contribute positively to a scale's reliability, we omitted it from the final scale for that construct.

Students' Perceptions of the School/Classroom Environment (Impacts reported in Table 8)

Performance Goal Structure. Students' perceptions that their teachers promoted a performance goal structure was measured by a three-item scale (Cronbach's $\alpha = .719$). The value for the construct was calculated by taking the average of the following survey items²:

1. How true is it that teachers pay too much attention to grades and not enough attention to helping attention to helping students learn?
2. How true is it that teachers treat students who get good grades better than other students?
3. How true is it that teachers only care about the smart kids?

(Response Options: 1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Always)

² A fourth item in performance goal structure, "How true is it that students are encouraged to compete against each other for grades?" was considered for inclusion in this scale. But its inclusion would have lowered the scale's reliability. The item's correlation with the scale was only .393.

Mastery Goal Structure. Students' perceptions that their teachers supported a mastery goal structure was measured by a two-item scale (Cronbach's $\alpha = .635$). The value of the construct was calculated by taking the average of the following two survey items³.

1. How true is it that everyone can get good grades if they do their very best?
2. How true is that trying hard counts a lot?

(Response Options: 1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Always)

Support of Autonomy. Students' perceptions that their teachers supported their autonomy was measured by a three-item scale (Cronbach's $\alpha = .535$). The value of the construct was calculated by taking the average of the following survey items:

1. How often do students get to decide where they sit?
2. How often are students allowed to choose their partners for group work?
3. How often do students get to participate in making school rules and policy?

(Response Options: 1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Always)

Promotion of Discussion. Students' perceptions that their teachers promoted classroom discussion was measured by a three-item scale (Cronbach's $\alpha = .550$). The value of the construct was calculated by taking the average of the following survey items:

1. How often do students get to discuss their work in class?
2. How often are students' ideas and suggestions used during classroom discussions?
3. How often is there a lot of classroom discussion about what you are learning?

³ Two additional items in mastery goal structure, "How true is it that everyone is challenged to do their very best?" and "How true is it that teachers want students to really understand their work, not just memorize it?" were omitted because they lowered the scale's reliability. These items' correlations with the scale were .354 and .285 respectively.

(Response Options: 1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Always)

Teacher Social Support. Students' perceptions that their teachers provided social support was measured by a three-item scale (Cronbach's $\alpha = .74$). The value of the construct was calculated by taking the average of the following survey items:

1. How often can you depend on teachers to help you when you have a personal or social problem at school?
2. How often do you talk to teachers about how things are going in your life?
3. How often do your teachers really understand how you feel?

(Response Options: 1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Always)

School Engagement (Impacts reported in Table 10)

A single item was used to measure one aspect of school engagement, social engagement with peers: “Interacting with peers is an important part of school for me.” All other engagement outcomes were scales. In addition, several items in each engagement domain were reverse coded so that a higher score indicated higher engagement. The value of each construct was calculated by taking the average of the survey items:

Cognitive Engagement. Students’ cognitive engagement in school was measured by a six-item scale (Cronbach’s alpha = .76):

1. I look over my schoolwork and make sure it's done well.
2. I keep trying when I get stuck on my schoolwork.
3. I figure out what I did wrong when I make mistakes on my schoolwork.
4. I give (don’t) up right away when I don't understand (reversed).
5. Finishing my homework fast is (not) more important to me than doing it well (reversed).
6. When schoolwork is too hard, I just don't do it (reversed).

(Response Options: 1 = Strongly Disagree 2 = Disagree 3 = Neither Agree or Disagree 4 = Agree 5 = Strongly Agree)

Behavioral Engagement. Students’ behavioral engagement in school was measured by an eight-item scale (Cronbach’s alpha = .74):

1. I always try my best in school.
2. I contribute to what we are doing in class.
3. I ask questions when I don't understand.

4. I get involved in school activities (e.g. clubs, sports, school events).
5. I (don't) find reasons to get out of class (reversed).
6. I don't (do) pay attention in class (reversed).
7. I don't (do) complete my homework (reversed).
8. I (don't) goof off during work time in class (reversed).

(Response Options: 1 = Strongly Disagree 2 = Disagree 3 = Neither Agree or Disagree
4 = Agree 5 = Strongly Agree)

Emotional Engagement. Students' emotional engagement in school was measured by an eight-item scale (Cronbach's alpha = .81):

1. Doing well in school is important to my future.
2. I am happy at school.
3. I am proud of my school.
4. I am interested in what we are learning at school.
5. I (don't) feel worried at school (reversed).
6. I (don't) feel overwhelmed by my schoolwork (reversed).
7. I (don't) feel frustrated in school (reversed).
8. I (don't) find school to be irritating (reversed).

(Response Options: 1 = Strongly Disagree 2 = Disagree 3 = Neither Agree or Disagree
4 = Agree 5 = Strongly Agree)

Social Engagement. Students' social engagement in school was measured by an eight-item scale (Cronbach's alpha = .76):

1. I help my peers when they are struggling.
2. I enjoy working with peers at school.

3. I work with other students and we learn from each other.
4. I enjoy spending time with peers at school.
5. I don't (do) have friends in school (reverse).
6. I don't (do) feel like people notice me in school (reverse).
7. ***Interacting with peers (is) not an important part of school for me*** (reverse).
8. I don't (do) care about the people at my school (reverse).

(Response Options: 1 = Strongly Disagree 2 = Disagree 3 = Neither Agree or Disagree
4 = Agree 5 = Strongly Agree)

Biographical Statement

Robert W. Dodd completed his doctoral studies in entrepreneurial leadership in education at Johns Hopkins University. He received a bachelor's degree in English and master's degree in school administration from McDaniel College. In his 25 years in public education, he has served as a teacher and a principal at both the elementary and middle school levels. He is currently the principal of Walt Whitman High School in Bethesda, Maryland. He is interested in how middle level educators can change organizational structures to improve teaching and learning.